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UNIVERSITY OF PENNSYLVANIA

AN APPROACH TO THE SYNTHETIC
STUDY OF INTEREST IN
EDUCATION

BY
DOUGLAS WAPLES

A THESIS

PRESENTED TO THE FACULTY OF THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

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AN APPROACH TO THE SYNTHETIC STUDY OF INTEREST IN EDUCATION: PART I

DOUGLAS WAPLES

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CHAPTER ONE. INTRODUCTORY

The difficulty encountered in the attempt to isolate any educational topic for discussion has been reassuringly defined by Professor Dewey: "The issues are so interdependent that any one of them can be selected only at the risk of ignoring important considerations, or else of begging the question by bringing in the very problem under discussion in the guise of some other subject. Yet limits of time and space require that some one field be entered and occupied by itself. . . . The difficulty is particularly great in the discussion of interest." Such being the case, it is necessary either to establish the most generally accepted limits of the field, or else to fix the bounds arbitrarily. To this end will be considered (1) the present occasion for investigation of the topic, (2) its aim, (3) the nature and range of previous investigations and sources, (4) the method of procedure, (5) the scope and definition of terms, and (6) the problems excluded from the discussion.

1. *Appropriateness of the Topic.*—Academic study of educational controls is probably more extensive at present than ever before in America, and attention to the by-products and methods of other sciences has done much to widen the approach, yet a comparison of the means employed to solve moot-points of theory in the United States with those of England, for example, will probably show the former to be more largely quantitative. This applies with equal force to problems of administration, supervision, and teaching. The quantitative approach is thoroughly justified by its results, by the necessity of dealing with large numbers, of substituting fact for opinion, and by many other arguments no less conclusive. Yet however justified by

results and prospects, the claims of the quantitative approach cannot be fully vindicated without the intervention of the devil's advocate, and it is this function that the present article seeks to fulfill. It is largely in the replies to the *quo bono?* that the value of real discovery becomes evident. It is then reasonable to expect some assistance toward further experiment from the analysis of inferential opinion regarding interest. Some corollaries of this assumption may be very generally stated.

(a) More concretely, there is need for some study—other than the single chapter of the standard text-books—to consider the contributions of the early child-study movement to the problems of interest from the standpoint of descriptive psychology. While these studies have doubtless been wisely evaluated and to some extent applied, further research should be stimulated by knowledge of the extent to which they confirm or invalidate empirical hypotheses.

(b) The hiatus which existed formerly between pedagogical studies of interest in the classroom, in particular studies, etc., and the purely speculative and philosophical descriptions of so-called social interests, "springs of action," etc., has within recent years been filled by the writings of the "Behaviorist" school. The influence of genetic psychology upon class instruction and courses of study has been largely stimulated thereby and has combined with the measurement movement to provide more adequate curricula and more effective methods both of teaching and administration. There have been few attempts to separate out and analyze the principles governing the growth of individual interest from the more general studies of individual differences in connection with normal group distribution. Such analysis should thus contribute to the effectiveness of the vocational guidance, problem-project, supervised study, and similar movements.

(c) The application of the psychology of psycho-analytic treatment of neurotics to normal individuals and to the principles of education generally is very rapidly winning the sanction of responsible writers on education. While the dangers attending direct application of the methods are at present prohibitive, there is reason to suppose that methods of instruction may profit by further studies of the unconscious. War-time analyses of normal individuals suffering from shell-shock have done much to eliminate the emphasis upon sex and to extend the field of application.¹ Of note in this connection is the bearing of such studies upon the problems of re-

¹ cf. Dr. Southard's article: *Mental Hygiene*. *Hygiene*, Jan., 1920.

pression of interest, the diagnosis of repressed interest, the general factor of interest, et al. Discussion of this evidence as applied to education has not, to the best of the writer's knowledge, been related to other data available.

(d) There is noticeable in the current discussions of the theory of interest a very natural prejudice against the "doctrine of interest." One evident effect of this prejudice in the United States is to restrict the discussion. Stated in very general terms, there is a tendency on the part of most writers to mediate between the two evils of "soft-pedagogy" and formal discipline, and to leave it to the quantitative estimate of results and the teacher's good sense to strike a happy compromise. While the remedy lies rather in evolution than research, it would seem advisable that the cause of such prejudice be analyzed, if other than the over-enthusiasm and dogmatism of certain Herbartians and Frobelians.

(e) Finally, it will suffice to mention the most inclusive justification for a study of this kind: namely, the importance of proper diagnosis of the pupils' interest as compared with other factors of the educative process. From the standpoint of secondary education the following remark of Inglis may be taken to represent the consensus of responsible opinion: "It is probably no exaggeration to say that the adaptation of secondary education on the one hand to meet the needs of different capacities, interests, and probable futures among pupils, and on the other hand to meet the differentiated needs of society, is the most important problem of secondary education at the present time."¹

(f) In summary it may be observed that an investigation of interest may profitably be undertaken for the purpose of gathering together the results of studies made from many different points of approach. Upon such data it should be possible to form a more comprehensive and applicable notion of interest than that obtained either from general experience, from educational and philosophical theory, from descriptive and analytical psychology, or from attempts at quantitative measurement alone. Such a notion should contribute something to the existing theory and application of methods—if only the incentive to further and more conclusive research.

2. *Aim.*—The proposed study seeks first by selection from varied sources to identify and correlate certain psycho-physical and social elements of interest at successive stages of development. By extend-

¹ Alexander Inglis: "The Principles of Secondary Education," p. 75.

ing the conception of interest to include the entire range of popular and scientific denotation, it will seek to indicate the nature, development, and effect of the significant forms of its expression. In this course certain relationships are noted which suggest an approach to the further investigation of their educational value. In the main this value should consist in a conception of general principles of motivation whose validity is dependent upon accurate diagnosis of interest. As applied both to the periods of school life and to the stages of instruction in a single subject, this expression of interest is obviously determined by the other chief factors in experience—thought or knowledge, and action. The final chapter, which outlines the educational bearing of those preceding, considers these determinants of motivation in order to indicate an approach towards standardization of the learning process. Only tentative conclusions are reached. Hence discussion of the study is rather descriptive than expository.

3. *Previous Investigations and Sources.*—It will be helpful here to distinguish briefly the main classes of contributory material by selecting certain representatives of each class by which the student can cover the field with the greatest economy of time. If the material be divided first into three general classes, the first (*a*) may include those works in which the analysis of interest is largely introspective. Among these may be further distinguished those with a direct pedagogical reference and those without. The second class (*b*) may include the various forms of descriptive psychology, ranging all the way from the results of laboratory analysis to accurate biographies of childhood and adolescence. The intervals in the range are marked by the divisions of purely analytic psychology, social psychology, and biological studies of various degrees of scientific tenor. The remaining class (*c*) for lack of a better term may be called statistical. Here belong the child-study and other investigations to determine by group analysis the nature of interest and the effect of various influences upon its expression. It should be noted that each of these classes is further distributed between the strictly pedagogical and the strictly psychological approach and also between the direct and the incidental study of interest. In spite of the greater difficulty of adaptation, the latter classes are generally speaking the more reliable.

(*a*) It is not surprising that the field of introspective psychology is the one most fertile for the student of interest. We know that a

particular feeling has certain qualities for us, but not why it has them. "Warmth and intimacy" have no objective criteria. Hence any account of the affective process which bridges the gaps of the physiological approach on the one hand and is free from a teleological bias on the other, is likely to square best with the facts and to provide the most satisfactory basis for further analysis. The statement is probably correct that no single mental trait has yet been adequately measured, and the inference as to the role of feelings which is based upon their expression under prescribed conditions must be confirmed by introspective judgment to win acceptance. Thus in spite of its generality and on account of its many points of contact with others, this field furnishes the ground work for the student of interest in education. Its important contributions are strictly in harmony with scientific method in that judgment is brought to bear upon all the facts of all the sciences pertinent to the subject of inquiry.

Of the directly pedagogical literature the basis is of course found in J. F. Herbart's *Outlines of Educational Doctrine*¹ and *Science of Education*,²—together with the critical accounts of Adams,³ Graves,⁴ and Tompkins.⁵ Herbert's contribution to the study of interest consists in his rough analysis of the state itself,⁶ in the relation of interest to other factors of the learning process and to the development of character, and in the move toward alignment of both sciences with wider teaching experience and observation. With the passing of the "doctrine" as a cult and the rapid development of analytic psychology, we have clearly distinguished what is valuable in the Herbartian theory from what is not.⁷ The increasing recognition of the child plus the situation as the unit of endeavor instead of the class, promises to release this valuable ele-

¹ Lange and DeGarmo's translation.

² H. M. and E. Felkin's translation.

³ John Adams: "The Herbartian Psychology Applied to Education; The Evolution of Educational Theory," p. 322ff.

⁴ F. P. Graves: "History of Education in Modern Times," pp. 198-220.

⁵ A. Tompkins: Herbart's Philosophy and his Educational Theory. *Educational Review*, Chapter XVI, pp. 233-243.

⁶ "Outlines," Chapter V; "Science of Education," Book II, Chapter III. The analysis here given is never entirely excluded from modern scientific accounts; e.g., S. H. Rowe: "Habit Formation and the Science of Teaching," p. 136ff.

⁷ As often emphasized, Herbart's chief inconsistency lies in regarding ideas as the psychological cause of interest and interest as the pedagogical means of obtaining ideas.

ment from formalism—due rather to his disciples than to Herbart himself—and to interpret it in the light of fuller knowledge. It is thus in general true that contributions to the study of interest from the field of purely introspective thought consist largely in these interpretations of Herbartian principles modified and enriched by subsequent application and reflection. Dewey's monograph, *Interest and Effort in Education*, may alone serve to illustrate the real value of recent pedagogical works of this group. Conspicuous among the strictly psychological contributions by the "direct" method is W. Mitchell's *The Structure and Growth of the Mind*.¹ The analysis here made of interest as a factor in universal experience is probably the most inclusive and adequate to be found, and the comparatively invincible logic of the positions outlined recommends them as thoroughly reliable hypotheses where established fact is insufficient to provide suitable explanation of the behavior involved. Such confidence is further justified by the fact that the work is in no sense educational in purpose and the phenomena of interest are not isolated from other mental phenomena. As such it alone may represent the direct psychological approach.²

(b) It is difficult to select from the wide contribution of analytic and descriptive psychology to the study of mental traits. For the entire physiological approach to interest the following are essential: W. McDougall, *Physiological Psychology*; Th. Ribot, *The Psychology of Attention*; E. L. Thorndike, *Educational Psychology*, Vol. III; F. Arnold, *Attention and Interest*; and E. B. Titchener, *The Psychology of Feeling and Attention*. Such general treatments will frequently require reference to such works as G. F. Stout's *Analytical Psychology* and W. H. Howell's *Physiology*.

¹ London, 1907. The author distinguishes the direct (or introspective) explanation of experience as that mainly concerned with the growth of the mind through use, the indirect being concerned with the physical account of experience. For brief critical appreciation of Mitchell's treatment of interest see J. M. Baldwin: "Thought and Things," III: 13, whose "Genetic Theory of Reality" (1915) contains a further development of this treatment of interest.

² Although the entire range of critical and impressionistic writing belongs properly under this head. From among such brief treatments as will readily occur to the reader, the following may be mentioned as excellent:

W. C. Ruediger: "Principles of Education," Chapter XV.

P. Sandiford: "The Mental and Physical Life of School Children," Chapter XIII. Strayer and Norsworthy: "How to Teach," Chapter III.

W. C. Bagley: "School Discipline," Chapter IV.

E. A. Kirkpatrick: "The Individual in the Making," Chapter II.

Distinguishing from the above such studies of interest as stress the biological and social aspects, one finds numerous secondary treatments that compare favorably with original investigations in scope and which of course are more readily adapted to educational application. The approach can probably be covered sufficiently by J. M. Baldwin's *Mental Development: Social and Ethical Interpretations*; K. Groos, *The Play of Man*; E. A. Kirkpatrick, *Genetic Psychology*; and W. McDougall, *Introduction to Social Psychology*. These should be supplemented by M. W. Keatinge, *Suggestion in Education*; J. Lee, *Play in Education*; H. Marot, *Creative Impulse in Industry*; M. Nicoll, *Dream Psychology*; G. Wallas, *Human Nature and Politics*; and W. A. White, *Mechanisms of Character Formation*. This material contributes to such fundamental topics as the source and role of interest in all activity, its familiar manifestations in the process of growth, the modification of normal biological tendencies resulting from social contact, and the implications of socialized expression.

(c) The caption "statistical" has been chosen to cover the great variety of studies—mainly educational in aim—which have recorded and compared the preferences, the environmental conditions, and the specific reactions of groups of children as means for diagnosing interest. The range of these child-studies by questionnaire methods from 1895 to 1905 may be readily observed from the indices of such journals as the *Pedagogical Seminary* and the *Child Study Monthly* for these years. Other methods include the enumeration of objects collected at different ages, analysis of compositions, inference from definitions of various objects and abstract ideas, from free drawings, from games, from ideas longest remembered, from verbal replies to prepared questions, and from observation of the child's reaction to pictures, stories, and other amusements. The two lines of study represented by Terman's *Measurement of Intelligence* and Link's *Employment Psychology* are defining quantitatively some few "specificities" that enter into all interest and relating these to environmental controls. This approach, while chiefly of indirect value at present, is certain to contribute most eventually.

The fact that very few of such studies have made any real contribution to the theory of interest renders these few easy to distinguish. The method and value of three types of these latter may be briefly illustrated by Croswell's "Amusements of Worcester School Children;"¹ Chapman and Fecler's "The Effect of External In-

¹ *Pedagogical Seminary*, VI:314-371.

centives on Improvement;”¹ and Thorndike’s “Early Interests; Their Permanence and Relation to Abilities.”²

Croswell received 2,000 replies to a topical syllabus by which children were asked when, why, and what games and toys were played with and which were favorites. One thousand replies were received from each sex. These were tabulated under various heads to show by how many each amusement was mentioned and by how many it was preferred, of each sex. Each classification under this scheme is represented graphically by per cent and age to show “curves of relative interest.” These indicate the growth of “special” interests and show the nascent periods in a number of groups. Thus “the curve of games of chase shows that only eleven per cent of all amusements mentioned by boys of six years are of this character, but at nine years they amount to over nineteen per cent and at sixteen they have fallen to less than four per cent.” Each classification is carefully analyzed from many points of view and much collateral material is utilized to substantiate the conclusions drawn. The bibliography is entirely complete for 1899. Confidence is further justified by the fact that in many cases the teachers talked over the questions with the children, but what distinguishes the study from others of its type is the thorough analysis by other evidence. As a fair indication of the normal expression of genetic interests in one locality (seven schools from widely different communities were examined), it is a valuable supplement to such generalized evidence as that presented by Groos and other child biographers. By recording and classifying all forms of spontaneous activities, the data afford much more assistance in the analysis of interest than closer analysis of certain selected activities.

A parallel-group study based directly on elementary school practice was conducted by Chapman and Feeler (1917) to determine the effect of external incentive on rate of improvement in performance of school work. Assuming the close relation between interest and effort, two methods were employed,—the direct appeal to the subject’s interest by showing its close relation to the desired activity, and the indirect or borrowed appeal of rewards and incentives external to the process itself. A group of thirty-six fifth grade boys and girls was divided and tested for nine successive days by Thorndike’s simple

² *Journal of Educational Psychology*, VIII: 469–474.

³ *School and Society*, V: 178.

addition test (ten minutes), Woodworth and Wells' cancellation test (one minute), and in substituting figures for numerals (five minutes). Incentive and stimulation were applied as follows:

GROUP A

(In addition to B.)

1. Each pupil's results published for previous day.
2. Point marked in blue of previous day's performance.
3. General improvement of class shown by graph.
4. Credits given in form of stars for improvement from last record and for position in class. Prizes promised at end of ten periods to fifty per cent who had most stars for efficiency and improvement.

GROUP B.

(No stimulation except)

1. Informed of errors in addition.
2. Novelty of test.
3. Interest in work itself.
4. Same conditions as those of serious school work.

The results, which are shown graphically, are somewhat impressive. The rate of improvement of the two groups varies directly with the length of the practice period in each operation. By the ninth period the motivated group stood ten points higher than the unmotivated, the points being awarded for each correct operation and subtracted for those incorrect. The diagnosis of individual interest responsive to such direct appeal and the standardization of the stimulus is clearly a study of the first importance.

While of no immediate significance in point of method, Thorndike's current investigation to establish a correlation between interest and ability may inspire effort to determine the causes for the variation¹ which will then offer an approach to the quantitative description of interest in terms of relatively measurable determinants. The remark seems almost superfluous that no affective state can be recognized objectively except by the inevitable movements accompanying it, between which and the state itself, in a given instance, the subject cannot distinguish any constant correlation.

¹ As will later appear, the compensating interest in deficiencies is probably constant and so would tend to reduce the correlation suggested by Thorndike as eighty-nine per cent. This wider variation, if established, must then be seriously investigated. But see Thorndike, *Educational Psychology*, III:360ff. for view of compensation consistent with the above text.

From the replies of 344 college students to a questionnaire calling for an indication of both interest and ability in the various studies in the last three years of elementary school, in high school, and in college,—the following ratios are computed:

	RESULTS FROM 344 INDIVIDUALS	PREVIOUS RESULTS FROM 100 INDIVIDUALS
<i>Permanence of Interests</i>		
Elementary school interest with high school interest	$r = .85$	
Elementary school interest with college interest	$r = .66$.66
High school interest with college interest	$r = .79$	
<i>Permanence of Abilities</i>		
Elementary school ability with high school ability	$r = .83$	
Elementary school ability with college ability	$r = .71$.66
High school ability with college ability	$r = .66$.6
<i>Resemblance of an Individual's Order of Interest to his Order of Abilities</i>		
In last 3 years of elementary school	$r = .89$.89
In high school	$r = .89$.89
In college	$r = .89$.89

After making allowance for error, the author concludes "On the whole I believe that the correlations given above are approximately what an omniscient observer of these persons would have found. . . . As another case of special interest in practice we may take the significance of the reports of relative *interest* at 11-14, for relative *ability* at 21 or later, commonly later." This latter possibility certainly offers sufficient incentive to improve the methods by which real interests may be diagnosed more specifically to indicate promise, if it be established that their correlations with measureable abilities are low.

This hasty survey of sources should suggest the wide variety of approaches to the study and something of the relative and particular value of each type of material.

4. *Method of Procedure.*—The study to be outlined is based upon a three fold division of subject matter. There are other reasons for this division than that of mere convenience. Employing the familiar distinction between teaching, instruction, and education which identifies teaching with skill-training, instruction with the organization of knowledge by habit, and education with the modification of character

by the addition of ideals to the foregoing, we have a basis, largely hypothetical no doubt, for distinction between aspects of the process. Such distinction is further supported by the "three levels" of neural development. The concomitant activities of these are somewhat in agreement with the interests characteristic of each period as expressed in favorite amusements, etc., which, are assigned roughly to the mental ages birth to six, six to nine, and nine to fourteen. Still further it is convenient to group the data under the physiological, the biological and the sociological interpretations so as to furnish loosely corresponding treatments of (I) interest as a state of consciousness, (II) of its development in universal forms of expression, and (III) of the modifications in its expression hitherto regarded as instinctive which result from social contact. While it needs to be emphasized that development of interest like that of all mental traits is gradual and that distinct periods of growth in the various factors do not synchronize at the three stages in one individual, still it is believed that the theoretical analysis is in sufficiently close agreement with biological law to justify this plan of procedure.

5. *Scope and Definition of Terms.*—In order that the account may be as inclusive as possible, the term interest is interpreted in its literal sense to include all media of correspondence between the mind and the object, real or imaginary, of its contemplation. Subtracting thought and action from the course of experience, interest is what remains. Hence interest implies the emotional accompaniment of every attentive state without regard to the quality or intensity of the emotional tone. While this catholic and somewhat technical use of the term is partly restricted and partly justified as the discussion proceeds, it is believed that no other can be strictly in keeping with the purpose of the inquiry.

To prevent analysis in vacuo, certain hypotheses are here suggested in anticipation of their later development. It is important that some understanding be reached at the outset concerning the relation of interest to mental experience as such and to other phenomena of which it forms a part.

Assuming interest to lie entirely within the limits of the affective process by which knowledge and action are determined,¹ one may

¹ For authority in the same general terms cf. J. Jastrow, "What men do depends upon what they believe, and how they feel," "The Psychology of Conviction," p. 7, and also "Fundamentally beliefs are formed and held because they satisfy." *Ibid* p. 5.

first consider the relation of interest to feeling in general. Reduced to its simplest terms, the process of development begins with certain specific reactions to appropriate stimuli which the organism is pre-natally disposed to feel. At this stage the affect forms practically the whole of experience which results from tendencies to experiment with various stimuli. At a later stage, when present feeling is modified by the results of former feeling, experience is determined by both. Interest, by hypothesis, is determined by the results of former feeling, *i.e.*, by experience. It should be noted that here such past experience is useful for merely specific ends. Organized response to a particular set of stimuli is not adapted to a different but similar set.¹ At a still later stage previous experience is so organized that reactions to usual situations are made with maximum ease and minimum feeling. Unusual situations are recognized as such and graded with respect to the intensity of the emotional response required. Such intensity is determined by the now habitual interests of the individual experience. Thus the inverse ratio of feeling and organized knowledge varies between pure feeling and complete knowledge. From this it may be observed that interest includes those elements of present feeling which combined with organic tendencies and associated elements of past feeling may be understood to determine the intensity, direction, and persistence of each attentive state. The investigation is then, in a sense, to analyze and explain these determinants with reference to successive periods of growth.

In order to identify forms of behavior resulting from these organic tendencies rather than from associated elements of past feeling, the distinction between interest and instinct deserves brief comment. It is clear that such distinction must be arbitrary since the functions of both overlap so considerably in any given experience. *Essentially the criterion is the degree to which the course of reaction is perfected.* Hence acquired instincts differ from organic instincts simply in that the latter direct the course of seeking without reference to previous experience. The development is therefore from instinct through interest to acquired instinct. This notion may serve here to avoid the con-

¹ Thus the boy who is first reduced to tears by the sight of his brother's chastisement and later by the mental picture of Simon Legree's lash across the back of Uncle Tom, has failed so to relate knowledge with feeling that a recurrence of the generic situation will provoke the same response—desire to avert suffering, perhaps—with decreased intensity of feeling.

fusion which must otherwise exist between so-called "special" interests and acquired instincts.¹

It is desirable to make another distinction here for future reference. Both feeling and interest imply pleasure-pain, satisfaction and dissatisfaction, etc., as resulting from any situation toward which attention is directed. Both should however be distinguished from thought of such situation. The object as it is set before us, we think; the manner in which it affects us, we feel. Therefore by our interest in the object we refer to our attitude toward it, and we may think of this attitude as well as of the objective qualities. Interest in the object may be spoken of as a quality of the object and so included in our thought of it. A cheerful fire is thought of as a kind of fire that makes the beholder cheerful. Hence interest is often, yet not always, included in thought of a particular situation, but thought is not properly included in the interest.²

This distinction between interest in the object and interest in the thought of it is useful in defining what is referred to throughout as *type of interest*. By analogy with memory the question is often asked; there is interest, but are there interests?³ The answer depends of course upon whether interest is considered as potential or as expressed in various situations. In the latter case it is evident that previous experience with a similar situation determines the subject's attitude both to the situation itself and to the thought of it. There is then a logical basis for a theoretical classification of such attitudes by types of experience. Furthermore since certain types of interest as distinguished by such attitudes are characteristic of each individual and so greatly affect his interpretation of environment, the discovery of the appropriate type and a knowledge of its limitations is the theoretical prerequisite of effective motivation. As distinguished in the analysis to follow the types are three: an intrinsic, which seeks

¹ This distinction is regularly ignored in popular studies of "the collective instinct," "the travel instinct," etc., and becomes tenuous as regards imitation, gregariousness, curiosity, et al.

² For elaboration of this distinction which is most important in educational practice and for the study of correlations between interest, knowledge and abilities, see W. Mitchell, *op. cit.*, pp. 64-65. The investigations of J. M. Cattell and others have established the fact that attention to an entirely uninteresting object is seldom longer than a minute's duration. This does not invalidate the above distinction.

³ *e.g.*, G. E. St. John: Children's Interests. *Child Study Monthly*, 3: pp. 284-286.

indulgence of feeling toward the situation; practical, which seeks usefulness, or directs action towards the situation; and cognitive, which seeks meaning.¹ Each of these types is conceived to be differentiated by socialized expression so as later to bring certain elements into prominence that are comparatively negligible during infancy.

For further assistance in classifying interest in particular forms of activity the term *variety of interest* has been accepted as somewhat synonymous with "special interests" as the latter term is popularly used. There is, however, the difference that the variety of interest applies to that common quality of certain objects or activities which explains the subject's attitude toward them, in the sense that the attitude can only be known objectively as it is combined with thought of the object and so regarded as a quality.² "Special" interests are usually identified with the chosen activities themselves. While certain elementary varieties may occur in any type, those appearing later tend to find expression in appropriate types; though since the pure type probably exists only in abstraction, the truth of this statement depends largely upon the specific case.

It is recognized that without copious illustration, which space does not permit, the formal statements and diagrams of such general principles as the above may tend to obscure the facts they are intended to organize. It should therefore be emphasized at this point that the principles hereafter outlined are valueless except as applied to the specific situation. The situation can never be applied to the formula without danger of aeroplaning.

6. *Problems Excluded from the Discussion.*—(a) No attempt will be made to justify the theory of the concomitant development of

¹ After W. Mitchell, *loc. cit.* In general, the agreement among authorities in different fields upon this logical classification of interests is surprisingly close. Following Herbert's three-fold classification under the two divisions of "knowledge" and "participation," others who have employed substantially the same terms as the above are W. H. Kilpatrick: *The Problem-project Attack in Organizing Subject-matter and Teaching*, *N. E. A. Proceedings*, 1918, pp. 528ff.; J. Dewey: "Interest and Effort," Chapter IV; W. McDougall: "An Introduction to Social Psychology," p. 26; C. R. Henderson: "Principles of Education," p. 389; N. M. Butler: "Meaning of Education," p. 17, who distinguishes religious and literary from the purely intrinsic type; J. Welton: "Psychology of Education," p. 198; and P. Sandiford: "The Mental and Physical Life of School Children," p. 224.

² Hence novelty, interest, repetition and movement as well as the acquired instincts, curiosity, imitation, et al, are discussed as varieties of interest, since all serve to explain the expression of interest in particular as against the general expression distinguished by the type.

mental traits, the general validity of which, in contrast to the theory of periodic development, is assumed. This applies likewise to the rejection of saltatory development at adolescence. Without such reservations the enforced plan of discussion would superficially imply abrupt transition between stages of interest and the periodic appearance of varieties of interest.

(b) The theoretical nature of the discussion focusses attention upon the phenomena of interest as observable in groups. This should not lead to the assumption that individual differences are ignored which is one purpose of the study to explain. The first step in motivation consists in determining the varieties of interest in which expression is temporarily most intense and thereafter in such instruction as will evoke expression in useful content as the result of voluntary effort of attention. The principles derived from groups presuppose such individual study for their application.

(c) The question of the relation between coercion and appeal to direct interest is excluded on the grounds that the situation should determine the practice. The effects of coercion upon expression of interest are briefly treated.

CHAPTER TWO. THE NATURE OF INTEREST

Interest as a state of consciousness—the first of the three aspects to be considered—is implied by, if not included in, the phenomena of attention. The physiological approach to the study of interest must underlie all other approaches, since “The physiological conditions of the brain’s activities are the first modifiers of feeling and action.”¹ Only so far as the attentive process is understood in its relation to various types of experience can the nature and development of individual interest be explained by the effects of such experience. Both outer stimuli and inner structure are involved. The attentive process must accordingly be considered for two purposes: first, in order to obtain a working conception of interest-attention as depending largely upon environmental factors; and, secondly, to identify various phenomena of interest with physiological processes by which these phenomena are conditioned.

The wide difference of expert opinion as to the distinction between attention and interest is proof that no clear distinction exists.² Yet some such distinction is required if environmental stimuli are to be so related to organic processes that the effect of each is apparent in the normal expression of interest. As best suiting this purpose the distinction may therefore be made on the basis of relativity. Such factors of the interest-attention state as are more largely organic and hence constant in their effects upon various normal individuals may be identified with attention. Such factors as are largely environmental and hence variable in their effects may be identified with interest. Attention, thus conceived results largely from nature, and interest from nurture. The former implies the capacity to attend, and the latter the direction of such capacity by the creation of desires and aversions through contact with environment.

This distinction between absolute and relative factors in the same state of consciousness serves the first purpose outlined above by

¹ E. L. Thorndike: “Educational Psychology,” III : 308.

² cf. E. B. Titchener: “Psychology of Feeling and Attention,” pp. 294ff. for views of Ebbinghaus, Pillsbury, Stout, and Wundt.

suggesting a correspondence between types of interest and types of attention. Such correspondence is clearly helpful in the attempt to explain differences in mental process as determined by differences in environment. The reference to "types" of attention suggests that the modern *analysis* of the state under the heads of span, concentration, distribution, etc. is to be abandoned in favor of the older *classification*—involuntary, non-voluntary, and voluntary (McDougall), or sensorial and intellectual (James), or emotional and volitional (Meumann), etc. The classification has the advantage in the present instance of including all the factors capable of analysis in addition to other factors implied in a given state and yet incapable of differentiation. The classification accepted by McDougall as above¹ is further useful in that the distinction between types of attention is based on the motor and neural processes involved. The relation of organic structure to environmental differences is thereby greatly facilitated provided that some connection can be established between types of attention and types of interest, the latter to be distinguished by the class of situations or of objects attended to.

The simplest means of arriving at this correspondence between types of attention and of interest is to note the effects of each type of attention in the expression of interest. The course of expression at any stage of development proceeds from a relatively less satisfying state of consciousness and seeks a relatively more satisfying state. The mechanical or motory process of the seeking is attention, and interest yields the feeling of satisfaction or dissatisfaction.² Hence it is evident that the distinction between types must depend primarily upon the nature of the object which determines the course of seeking. Certain classes of objects which provoke relatively more intense feelings of satisfaction or dissatisfaction serve also to select those motor processes best able to produce the desired effect. The effects of involuntary, non-voluntary, and voluntary attention may thus be noted as resulting from intensity of stimulus. It is obvious that the distinction between types is rather one of degree than of kind.

The characteristic effect of involuntary attention is fixation, or placing the object in such position that a clearer view is obtained. The physical sub-processes implied result in the better adjustment of the sense organs, movements to or from the object, and instinctive analysis of it. The type is chiefly distinguished by the motor element,

¹ *Mind N. S.*, XI: 319, Note 1.

² cf. W. Mitchell: "The Structure and Growth of the Mind," pp. 90ff.

which is reflex or instinctive. The adjustment is entirely effortless and no feelings of inhibition are apparent.¹ This fact justifies the assumption that involuntary attention which persists appreciably beyond the reaction time is commonly aroused only by situations of relatively maximum intensity. Such situations demanding immediate response are referred directly to the instinctive mechanism without risking the delay involved in judgment. This directness of response resulting from maximum intensity of stimulus is also characteristic of the intrinsic type of interest which seeks indulgence in feeling as such. It finds expression in such varieties of interest as are based in qualities of objects that are intense in themselves; as, for example, novelty, contrast, repetition, movement, rhythm and other qualities leading to states of absorption. Involuntary attention and intrinsic interest are both implied in sensori-motor experiment and in response to strong stimuli.

The normal effect of non-voluntary attention is merely a later phase of the fixation process which occurs when the desired state is not promptly attained. This effect has been termed mental manipulation. It consists in a revolving, analysis, and comparison of the situation with others. The ideo-motor process which controls the course of seeking is based on experience of earlier reflex movements. Action involves scarcely more effort than when attention is involuntary. Here again the effect of attention is to provide the means for the realization of interest which in this case seeks a change rendered desirable by previous rather than present experience. Its commoner expressions reveal interest in the overcoming of obstacles. Such interest is properly classified as practical since it includes such varieties as find expression in outer imitation, pursuit, and all forms of rivalry upon which the survival of the organism most directly depends. Intensity is lower than in expressions of intrinsic interest since the course of seeking is less immediately satisfying in itself. Interest in the pure stimulus is greater than interest in the object to be resisted. Thus the simultaneous appearance and scope of both non-voluntary attention and practical interest in all habitual behavior suggests a correspondence between these types.

The effect of voluntary attention is continued scrutiny of the object. Action is impeded by the necessity for selection of the best means from all means available. Neural dispositions resulting from past experi-

¹ Though the factor of inhibition is doubtless involved as suggested by Sherrington: "Integration of the Nervous System."

ence must be successively inhibited. Hence the process might last indefinitely, but for the factor of fatigue and changes in the object itself which may bring relief in action before the difficulty has been solved. In this course of seeking, interest implies the revival of and selection from all relevant ideas that may further the realization of useful knowledge. Such interest may therefore be classified as cognitive or intellectual and said to correspond with voluntary attention. It should however be noted that in cognitive interest the nistic character of the attentive state is of very brief duration. The slow rhythm and fluctuation characteristic of voluntary attention may reduce the intensity to such a point that attention dies,—and with it very frequently the interest. Or else success in solving one aspect of the problem before attention may introduce practical or intrinsic elements to the existing variety of interest which serve to increase the intensity,—often so as to render attention non-voluntary or involuntary. Hence the inhibitory effect of voluntary attention need last only long enough to admit other types of interest.

Otherwise stated, attention to any object or situation provides the means by which one or more types of interest may be realized. Particular sub-processes involved in the course of seeking are selected by the immediacy of response required, which depends upon the intensity of interest determined by the type of experience. The situation may stimulate in order to obtain emotional satisfaction, thus revealing intrinsic interest; or attention may seek to overcome a physical difficulty,—the practical type of interest; or in order to understand the situation for future usefulness,—the cognitive type of interest. It should be further noted that each attitude toward environment, as indicated by type of interest, includes more specific “varieties,” which are later to be considered in discussing the growth of interest. Several such varieties are common to all types of interest,—for example interest in achievement or social superiority, which follows the realization of all interest and is the affective equivalent of organic processes making for self-preservation. Even when inattentive or involuntarily attentive, this interest in achievement consists in the felt attitudes to aspects not attended to and in the exercise of the senses. Ideo-motor non-voluntary attention reveals this interest in successful performance of habitual acts; voluntary attention in the realization of one or more specific interests in the problem. Such specific interests illustrate the shifting of types. Voluntary attention may seek to realize interest in achievement by the possession of fuller feeling and appreciation, *i.e.*,

intrinsic interest; or in a new feeling by assuming a practical attitude toward the object or a different attitude toward itself; or in relief from conflicting feelings by thinking out each side and comparing consequences.¹ The predominant role of this interest in achievement found in impulses largely biological in origin, becomes an interest in personal superiority as the result of social activity. The important psychological implications of resistance to this interest are discussed in a later chapter.

To clarify this discussion of the nature of interest as determined largely from without and hence to facilitate future reference, the substance of preceding remarks is represented in Figure One. The scale of attention is arranged about as suggested by Ribot² to illustrate the graduated intensity of types. The relationships indicated in the chart of interest are substantially in accord with the facts as recorded by group studies and logical inference. The clear distinction between types shown by the segments of the diagram postulates a pure type of interest, which seldom occurs. Later analysis will reveal a margin of overlapping which serves to justify the apparent restriction of cognitive interest to attentive states of low intensity. The figure becomes more intelligible if the three segments are regarded as composing a fan, which may close to the width of any one segment or open to the width of all three—as here shown. This emphasizes the fact that each variety of interest may occur in all types. For example, when a boy is sufficiently interested in the glitter of a piece of metal to pick it out of the mud, his interest may lie wholly in the response to strong visual stimulus—the gleam—and is therefore intrinsic. Or it may be the hope of sudden wealth—a practical interest. Or it may be curiosity to learn why it gleams—a cognitive interest. In each case the reaction and hence the function of attention *depends upon the intensity of interest regardless of type*, though the theoretical correspondence may usually be justified in a given instance.

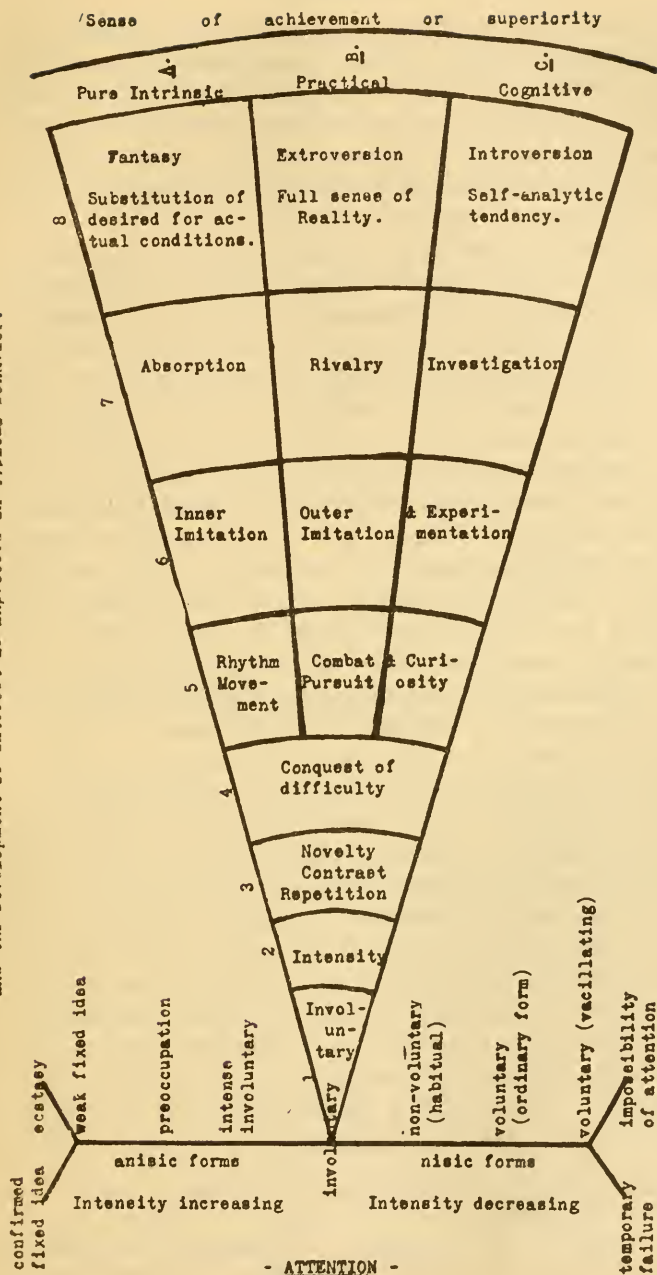
Passing to the second consideration of the physiological approach, we have to identify various phenomena of interest with physiological processes which condition these phenomena. In other words it is necessary to shift the point of view from the environmental to the organic and neurological conditions of attention by which the growth of interest is determined. Without pausing to relate the

¹ cf. W. Mitchell, *op. cit.*, pp. 95, 98.

² "Psychology of Attention," pp. 110ff.

- INTEREST -

Figure One. Illustrating Correspondence between Types of Attention and Interest and the Development of Interest as Expressed in Typical Behavior.



Explanation: Vertical scale indicates degree of intensity of attention.

Segments A,B,C indicate types of interest which in pure form may be considered to vary in degree of intensity somewhat as indicated. Attention is labored in purely abstract thought and intense in purely aesthetic feeling, etc.

Arcs 1,2,3, and 4 indicate varieties of interest, i.e. general forms of expression, which occur in any type. Arcs 5,6,7, and 8 indicate varieties which tend to seek expression in appropriate types, thereby modifying the intensity of attention by causing the types to overlap. Such types are of course distinct only in abstraction; the expression of interest is normally distributed through various forms of behavior of which the above are merely typical.

many subsidiary factors of attention to the phenomena of interest,¹ it is well at least to mention those processes whose genetic development serves to explain stages in the development of interest. Such universal forms of expression as are mentioned in connection with the growth of interest (Chapter Three) will thus imply the physiological conditions characteristic of each stage of development. For this purpose a most casual reference will suffice.

Assuming familiarity with the treatments of Baldwin, Thorndike, and Wundt, we may postulate three stages of interest and suggest under broad headings the physiological factors most characteristic of each. As commonly distinguished² these stages are assigned roughly to the years birth to 9, 9 to 13, and 13 to maturity. The first may be termed experimental, implying interest in sensory and motor exercise for its own sake or for relatively insignificant ends. The second, or imitative stage, marks the appearance of aggressive and defensive social interests that show native biological tendencies in partial conflict with environment. The third or reflective stage, while of course including the features of the earlier stages, shows the individual largely identified with certain ends. Such interests may be said to have become habitual. While the expression of all interest is normally distributed over the range of development indicated by the three stages, these periods determined by the notion of neural arcs are helpful for purposes of classification.

The physiological basis of interest-attention may be referred to the combination of organic and neural processes. The organic must here be largely disregarded, yet their role in the effective expression of interest is fundamental. Motor, respiratory, and vaso-motor phenomena are essential constituents of every state. The genetic development of these organic processes is implied by capacity for rational choice, which involves conscious control of motor processes and to some extent of the respiratory. In a word, the stages of interest are marked by the appearance of various forms of movement. Reflex and instinctive, ideo-motor, and voluntary movements develop successively and imply greater capacity to profit by experience, as suggested in the preceding discussion of type. Since all forms of attention must appear in each stage and develop concom-

¹ McDougall offers a list of fifteen such factors which might profitably be so related. *Mind. N. S.*, XII: 317-8.

² By Adams: "Exposition and Illustration in Teaching," p. 54; Baldwin, "Mental Development: Social and Ethical Interpretations," pp. 362ff; Croswell, *loc. cit.*; et al.

itantly, the course of motor development toward voluntary inhibition is closely parallel. Certain reflex movements are valuable aids in the diagnosis of unconscious interest. Others by mere expenditure of energy facilitate attention indirectly by arousing the motor centers, and directly by adjustment of the sense organs. Instinctive movements combine a series of reflex movements in a certain order which the ideo-motor process connects with an idea of the situation as a whole. Hence the effect of the movement upon the impression or idea is the important one of reinforcement by innervation. The idea can be more clearly distinguished if the related movement is actually made. The inhibitions of voluntary movement are likewise explained as the omission to reinforce ideas with undesirable associations. Such inhibitions involve the uncertain relation of interest to fatigue. The remark is probably safe that the degree of general fatigue inhibited varies directly, but within narrow limits, with intensity of affective tone.¹ Respiratory processes, as determining in part the distribution of attention, develop similarly. The vaso-motor process, as regulating with other factors the supply of blood to the brain, determines also the intensity of the attentive state and is an important condition of definite association and reinforcement. As related to affective states these phenomena are perhaps most conveniently discussed by W. H. Howell's **Physiology** and the briefer treatment of F. Arnold's **Attention and Interest**.

Any adequate discussion of the neural process as determining the nature and growth of interest requires that recent conflicting theories of the apperceptive process be analyzed in the light of the most reliable behavioristic evidence. Such analysis is impossible here. Yet the nature of the inquiry may be suggested by the selection of the three widely accepted principles which McDougall declares to constitute the indispensable basis of physiological psychology; namely, the specific energies of sensory nerves, strict localization of cerebral functions, and the principle of association.² On the basis of these principles and their implications, the specific energies, *i.e.*, tendencies resulting from sensory or ideational stimulus, must occur in "the specific constitution of structural elements of the cerebral cortex that are capable of becoming associated together

¹ cf. Thorndike, *op. cit.*, pp. 120f. and C. S. Myers: "Introduction to Experimental Psychology," p. 107.

² "Introduction to Physiological Psychology," pp. 58f.

when thrown into simultaneous action."¹ The organization of these elements in functional groups, by which the nervous system evolves, is believed to consist in the formation and perfection of synapses which therefore determine both the direction and intensity of interest. This leads to a preliminary statement regarding the relation of feeling and knowledge, that intensity of the psychical process varies inversely with the complexity of neural organization, or knowledge. Psychical activity results when the resistance of the synapse to the neural current is high because of the novelty or infrequency of such currents—hence the affective value and interest in strong and unusual stimuli, surprise, etc. When the resistance of the particular synapses has been diminished by the frequent passage of the impulse, the intense psychic effect no longer appears. By voluntary reinforcement, however, impulses may be so directed through the complex systems of high intelligence that neither the resistance nor the resulting intensity is appreciably reduced. In this case the reinforcement merely functions with greater economy.

As distinguishing the hypothetical stages of interest and resulting from the successive development of neural arcs in systems of increasing complexity, three forms of reinforcement are implied: instinctive reaction to pleasure-pain, direct reproduction of neural systems associated by temporal contiguity, and divergent reproduction of such systems through derived associations. Certain implications of each form affecting the expression of interest may be briefly noted.

Highly stimulating objects, whether novel or sharply contrasted with the object in consciousness, can compel attention at all ages. In earliest childhood such objects produce and perfect the reflex movements whose control serves later to reinforce complex movements of the *ideo-motor* variety. Yet the state of involuntary attention resulting almost entirely from organic factors, in which they first appear, is without ideal reinforcement and consequently of very brief duration. Some form of reinforcement must exist to explain the tenure of such objects for even the fixation time, and this is found in sensations of pleasure-pain. Reinforced by such sensations—whether of sight, sound, taste, movement, et al.—attention persists and reveals the forward reference tendency apparent in higher forms of interest. In the case of mere sensory stimulation, the fact of attention may be ascribed to interest in the exercise of the organ stimulated. The stage of interest in such phenomena is accordingly quasi-organic or

¹ *Ibid.*

experimental. It is distinguished by the vagueness or absence of conscious aim.

Attention resulting from the factors of the cerebral level implies preperception, the ability to identify the object before consciousness with a mental image gained from former experience with it. Here the reinforcement results from association by temporal contiguity, which McDougall states "is the one and only form of association that can be explained physiologically."¹ Attention to any one element of the ideal disposition tends to reproduce the whole of a former experience. Selection from incoming impressions is guided by the reinforcement of such impressions as are almost entirely familiar. The constellation of mental states before the situation has entered consciousness seeks control by diffusion of energy in the direction suggested by the most familiar element in the situation. Suggestion is particularly potent in the direction of interest because of the ease with which familiar elements are dissociated. Likewise imitation of other's acts and reproduction of the child's own activities direct interest very largely and cause certain relationships to be taken-for-granted, thereby increasing the scope of interest. The stage implied by these processes may be termed the imitative or social stage as indicating tendencies to reproduce familiar experience. It is distinguished by complications of experimental interest resulting from social relationships. The characteristic aim is social superiority.

Reinforcement of voluntary attention is due largely to the complex interrelations in the neural systems of the frontal areas. The afferent impulse, instead of reproducing readily the constellations associated with it in time, diverges into a number of sub-systems related to the constellation. A conflict of tendencies results which can be resolved only by conscious deliberation. This successive inhibition of various means continues until an element of experience is revived which contains the solution or until the search fails. In the former case intermediate elements are referred to the ideo-motor processes and reinforced by temporal associations. In the latter case, the search is abandoned until the mind is recalled to the dilemma by dissatisfaction in the failure to control. In affective terms, the distinguishing feature of the process is desire for control through closer contact with reality as represented by previous experience. Expression of interest in this deliberative stage is characterized by mediation

¹ *Op. cit.*, p. 135.

between organic impulse and rational judgment. Sacrifice of either results in a repression of interest, the subject for a later discussion.

F. M. Alexander's recent work, *Man's Supreme Inheritance*, suggests that the phenomena of repression result from dissociation of the 'higher' from the 'lower' nervous centers. The implication is clearly that integration of neural function is essential to the most effective expenditure of effort, and the normal distribution of interest which such expenditure implies. Hence the deliberative stage of interest is distinguished by the variety of attitudes in which interest may find expression because of the numerous constellations in which thought of the given situation may occur. It is also marked by the tendency to act in certain interests which have become habitual.

In summary, it may be observed that the reference to certain more prominent physiological factors of interest has been developed by the three-fold classification proposed (Chapter One, 4). Under these heads both external and internal conditions are related to the most conspicuous phenomena of interest in such manner as should best help the discussion to follow. Abstract and rather arbitrary classification is necessary in order to emphasize common elements in various explanations of the same phenomena, hence none but the most general features are examined. Otherwise it would be possible to select from the wide field of studies to determine variations in the behavior of individuals and groups which this discussion is forced largely to ignore. From the evidence at present available the chief characteristic of such mental variations is their continuity. The intermediate stages are far commoner than the extreme types. Variations in the development of interest, perhaps the least constant of all mental traits, can therefore be recorded only within the limits of general tendencies.

CHAPTER THREE. DEVELOPMENT OF INSTINCTIVE INTEREST

The science of genetic psychology postulates that mature behavior is largely traceable to original instinctive endowment. Behavior at various stages is explained by reference to the stage preceding. It is clear, however, that such explanation is as yet by no means complete, nor can it be until an inventory of native traits is made to tally at all points with the main tendencies of later conduct. Pending scientific selection and description of such traits and tendencies, this complete explanation is clearly utopian. One is thus forced to rely upon opinion both in selecting instinctive traits and in distinguishing those later tendencies which the traits serve to explain. The abundance of expert opinion regarding continuity of instinctive development must be sifted by the most reliable evidence available, which is probably to be found in the many accurate descriptions of particular responses under various prescribed conditions.

Waddell states in this connection: "It is self evident that most of the interests are conditioned directly by instinctive emotional complexes. We cannot understand or anticipate interests, then, without an understanding of their inborn correlates."¹ For this reason it is easier to identify and classify the more constant varieties of interest when the behavior examined is closely restricted to activities of biological origin, for here conformity is greatest. Yet it is important that this approach should not obscure the distinction it is intended to emphasize; namely, the distinction between the instinctive basis itself as inferred from the child's responses and later interest-behavior which includes other than instinctive elements. The instinct for mere motor activities, for example, while explaining the fact of interest in movements does little to explain the nature of such interest as determined by the various ends sought. Yet the more nearly certain broad classes of interests, such as are indicated by the types before described, can be related to universal tendencies of instincts, the easier is it to mark off broad types of behavior in which related varieties of interest can be identified. To assist this relation of interest to

¹ "Child Psychology," p. 112.

instinct, the present discussion ignores social and other environmental elements of interest so far as possible, by considering only such expressions as occur in solitary play. Of these the most useful accounts are probably found in such familiar works as Chamberlain's *The Child*, Groos' *The Play of Man*,¹ and Preyer's *The Mind of the Child*. More particularized, and somewhat more scientific accounts of special forms of play are equally familiar in the various child-study publications. It is unfortunate that space forbids any description of evidence upon which a conclusive study of instinctive interest must rely. For this the reader is referred to certain original sources which illustrate the method of approach herein described.

This restriction of the field to largely non-social behavior is helpful in confining the discussion to interests of the experimental stage. It has however the disadvantage of excluding the phenomena of imitation appearing in the same period of development, which are reserved for later treatment as explaining social modifications of instinctive interest.² Experimental interests find fullest expression in play for the reason that playful activities are performed *per se*. Their relation to instinctive tendencies is therefore most close. Hence differences in type of instinctive function may serve to distinguish corresponding forms of play in which the type of interest is determined most directly by the instinctive function. Related varieties of interest can most readily be identified in these forms of play because of their development from a common instinctive source.

In most general terms, these types of instinctive function are two, the sensory and motor. By attaching sensory qualities to various objects instinct facilitates the satisfaction of organic needs,³ and these responses to agreeable stimuli soon constitute the primary form of conscious play. The feeling of satisfaction or dissatisfaction is the source of all interest which later includes the progressive forms of feeling, affect, impulse, and desire.⁴ Playful sensory exercise may thus be selected as the form of behavior which results most directly from interest of the intrinsic type, and the various qualities possessed by the stimuli of these sensations may accordingly be regarded as varieties of such interest. Instinctive motor activity of a sort is implied in all

¹ Pp. 7-118 of this work are closely followed in the remaining discussion of this chapter and pp. 173-334 in that of the chapter following.

² *I.e.*, the transition from private to public interest, *cf.* Baldwin, *op. cit.*, p. 503.

³ *cf.* W. Mitchell: *op. cit.*, p. 194.

⁴ Wundt: *Philosophische Studien*, 6: 380.

sensations, which reveals an "instinctive manipulation of things, movements to or from them, persistence against obstacles, and the restlessness that goes with a sense of want."¹ The pleasure of kinesthetic sensation soon produces such movements playfully as ends in themselves together with playful movements of foreign bodies. This second form of play is the logical province of experimental practical interest. In addition to these instinctive functions, a third may be predicated to account for the playful exercise of mental powers that reveals an experimental cognitive interest. This function first appears in the instinctive adjustment of sense organs to secure a fuller sensation. Its later activity in such plays as require the exercise of attention, imagination, and reason, as in guessing games, etc. is sufficiently great to justify the third division. These three progressive forms of play activity thus closely related to distinguishable instinctive functions and clearly evident in all children's behavior require further brief comment in turn. The purpose of this comment is to indicate hypothetically the conclusions which a truly scientific study of instinctive interest might reach both as to the gradual differentiation of types of interest in this behavior and the more conspicuous varieties in each type.

The conspicuous varieties of intrinsic interest may be supposed to extend from undifferentiated pleasure-pain sensations through such qualities as intensity, novelty, contrast, movement, repetition, rhythm,—and to culminate in states of aesthetic absorption.² While the order is mainly conjectural, it is supported by such accounts of progressive response to the various sensations as is offered by Groos. Intensity, novelty, and contrast are qualities which serve to explain expressions of interest in all sensations but chiefly in those of contact, sight, sound, and smell.³ Movement is of course here confined to visual sensations and results from the biological importance of attention to changes in environment. Interest in repetition appears chiefly in productive sound sensations. Rhythm as observed in the movements of others is interesting on account of the muscular innervations involved. Rhythmic sounds, from the watch-tick to band music, and melody at about four years, both excite a lively interest

¹ Mitchell, *op. cit.*, p. 105.

² Absorption is here interpreted as originally defined by Th. Lipps: *Zur Einfühlung*, Leipzig, 1913. It implies absorption *in* the stimulus, not *with* the stimulus as in the fixed idea.

³ cf. Preyer: *op. cit.*, Chapter I.

which is due largely to mild hypnosis.¹ In absorption this phenomenon is more apparent and is treated elsewhere in connection with inner imitation.

The gradual transition to the practical type may be illustrated by interest in the production of vocal sounds. From the mere acoustic sensation interest develops in overcoming the difficulty of articulation. This evolution of motor from sensory interest is typical of all playful behavior. From this point the normal varieties of practical interest may be tentatively listed as conquest-of-obstacles, control, pursuit, combativeness, outer-imitation or reproduction, and rivalry,—all culminating in achievement of highly particularized nature which is characteristic of all practical interest. As best expressed in playful bodily movements and movements of external objects, interest in conquest-of-obstacles appears in early attempts to sit, stand, or walk. This comes rapidly to include control and pursuit motives² as in passive movements of coasting or in runs, hill-climbing, and hide-and-seek games.³ Interest in control often renders such vocations as seamanship, fire fighting, and horse racing most attractive during the years 9–13.⁴ Combative instincts bear much the same relation to interest in many forms of destructive or analytic play as outer imitation bears to constructive interest in mud-pies, snow-men, and even in collections.⁵ Rivalry is evident in such collecting as in all behavior at the appropriate age. Its treatment as allied with interest in superiority is deferred to the later discussion of social interest. On the whole this relation between intrinsic and practical interest suggests the biological explanation of a familiar fact; namely, that motivation consists in the response to intrinsic stimulation which provokes voluntary effort toward a desired end. Such effort is rendered efficient by practical interest in achievement.

Experimental varieties of cognitive interest, as appearing in playful exercise of mental powers, may occur in recognition, expectancy, reproduction, reconstruction, curiosity, experiment, and—less clearly observed at this stage—investigation and judgment. As Kirkpatrick states, "If interests depended only upon the biologically useful in-

¹ cf. Gates: "Musical Interests of Children," *Journal of Pedagogy*, 2: 265–284.

² "No activity is interesting unless it follows the pursuit pattern," Jennings: "Suggestions of Modern Science," p. 164.

³ cf. J. Lee, *op. cit.*, Chapter 26.

⁴ cf. Crosswell, *op. cit.*

⁵ cf. Groos, *op. cit.*, pp. 99ff. and Burk "Children's Collections," *Ped. Sem.*, 7: 179–207.

stinets, there could be but little development of intellectual interest."¹ Yet it is only by instinctive exercise of mental powers in expression of practical interest that capacity for the so called "higher" interests is developed. Interest in the "warmth and intimacy" of mere recognition and also in expectancy may be termed wholly instinctive.² The memorizing and reproduction of nonsense syllables, etc. is largely of practical interest in the mere achievement, though some cognitive interest is implied. Interest in playful use of the imagination appears in reconstruction of past experience for indulgence in all forms of make-believe, as in stories told by and to children.³ Curiosity, while at first seeking novel impressions rather than meaning for later use, marks the rise of real cognitive interest in the exercise of reason.⁴ In plays with riddles, puzzles, tormenting animals, etc. interest passes from the post hoc to the propter hoc⁵ and still later to plays with the feelings as in games of self-control and endurance and also in ghost stories.⁶ Purposeful investigation and judgment involving higher physiological development need merely be mentioned as later forms of cognitive interest. The significant feature of cognitive interests is their brief duration in the pure type. When once expression is fairly under way other elements enter in to render the interest practical or even intrinsic.

These instinctive or experimental varieties of interest expressed in comparatively universal forms of behavior are next to be considered in their social complexity—as modified by processes of environmental adjustment.

¹ "Individual in the Making," p. 18.

² Groos, *op. cit.*, p. 125, finds humor resulting from impeded recognition.

³ J. Lee, *op. cit.*, *passim*; Barnes: "Studies in Education," I and II.

⁴ *cf.* J. Welton: "Psychology of Education," p. 209; and Henderson: "Principles of Education," p. 254.

⁵ Davis: "Interest in the Causal Idea," *Child Study Monthly*, 2: 226.

⁶ Groos, *op. cit.*, pp. 169ff. and Brewer: "Instinctive Interest in Bear and Wolf Stories," *Amer. Ass'n. for Advance of Science, Proceed.*, XVII.

CHAPTER FOUR. SOCIAL MODIFICATION OF INTEREST

We have here to consider a second stage in the normal development of interest. Yet while the distinction between stages is largely genetic, as implying progressive development of primary biological tendencies, the present discussion must also trace from early childhood certain environmental influences which modify these tendencies. Such social influences as are implied by various forms of imitation and suggestion, both modify and select organic impulses at every age. It is accordingly important to note the effect of such influences upon the expression of adolescent interests and the consequent modification of types as previously described.

The significance of this new approach lies in the nature of the learning process. For the infant the purpose achieved and the knowledge gained are purely incidental products of the course of interesting action, performed experimentally for its own sake. Instinct provides the occasion and interest initiates the action. Similarly when the actions of others are reproduced, there must be postulated an acquired instinct¹ for imitation consisting of a fusion of such organic instincts as respond to occasions possessing qualities known as suggestive.² Imitation implies that another's actions are of interest in themselves. Their reproduction by the observer leads to recognition of the purpose and so to interest in the result. He thus rises from sensory to perceptual imitation and, when the model is absent, to conceptual imitation. Hence imitation regarded as a "social" instinct modifies experimental interests by rendering certain actions habitual and causing their ends to be taken-for-granted, so that learning proceeds with greater economy. Such modification occurs chiefly through the agencies of inner imitation or sympathetic insight, outer imitation, and suggestion, which facilitates both. Each of these agencies may be briefly noticed in turn.

Keatinge classifies imitative behavior under the headings of instinctive, conscious, and purposive,—the last including acts per-

¹ Not an inherited instinct. cf. W. McDougall, "Social Psychology," pp. 90ff; Ribot, "Psychologie des Sentiments," note 1, p. 238.

² cf. Keatinge's list, "Suggestion in Education," p. 56.

formed *per se*, for practical ends, and for reasons of self-esteem.¹ Instinctive or inner imitation differs from other forms both in function and in earlier appearance. Its function, in a word, is to bring about conformity to certain situations by inhibiting instinctive tendencies to dominate them. Such reactions are thus largely *adaptive*, as contrasted with the *aggressive* varieties of interest hitherto considered. These phenomena of instinctive imitation are conveniently classified as fellow-feeling with man (*einfühlung*), fellow-feeling with nature and absorption in the object (*einsföhlung*).² Since the process in each of these forms is relatively similar, the first alone may serve to explain the rise of interest in conformity. Fellow-feeling arises from the infant's response to differences in personality. "As early as the second month it distinguishes its mother's or its nurse's touch in the dark. It learns characteristic methods of holding, taking up, patting, and adapts itself to these personal variations. It is quite a different thing from the child's behavior toward things which are not persons."³ By this awareness the child distinguishes between himself and others. Certain feelings associated with self are then attributed to others when they perform corresponding movements. Thus feelings of self and of other are mutually dependent. The adaptive self shares in the personality of others by assuming their attitudes so far as these have meaning from his own experience. He appreciates differences in such attitudes by virtue of his practical interest. To certain attitudes, those of his elders, he must at times submit. Those of his juniors, he may usually dominate. Practical interest in situations beyond his control is best realized by conformity and in other situations by aggression. The resulting action in childhood is merely the motor expression of a certain combination of elements and is entirely without moral significance.⁴ Yet moral interest can only arise from the need of conformity to various social situations. The further development of this interest in conformity may now be traced.

At about the fourth year the child learns to identify his own reactions to situations beyond his control with others' reactions to situations within his control. He recognizes that certain of his own interests are shared by others. Conscious recognition of his own interest as seeking certain ends must allow others the privilege of seek-

¹ *Ibid.*, p. 86

² Most satisfactorily perhaps by Baldwin, Lipps, and Mitchell, *op. cit.*

³ Baldwin, "Mental Development in Child and Race," p. 335.

⁴ See Lee, *op. cit.*, p. 240 regarding "the moral necessity of disobedience."

ing the same ends. At this stage his acts become socially significant. When the legitimate interests of others are opposed, he perceives that the other must feel as he does in such cases, and his sense of justice is accordingly offended. By fellow-feeling with the group he takes over their interests as his own and accepts their standards for himself to some degree. Here begins the compromise of the social life,—the adaptation of the group to his personal interests and the adjustment of these interests to the standards of the group.¹ This community of interest explains *loyalty* as the pursuit of one's own interests when these are sought by the group as a whole. As the group is progressively widened from the family to the playmate, the gang, the school, the town, etc., each new interest is first opposed by and then admitted to the fellowship of interests which at the time have become habitual. This equality of group interests implies the *moral* sense. Loyalty to group involves some sacrifice of conflicting personal interest. The satisfactions of successful conformity to group interests make the individual reluctant to aggress when the opportunity offers. Fidelity to certain personal standards of conduct is the condition of all group membership, which practical interest in superiority obliges him to retain. Such recognition of common interests further indicates the rise of purposeful conduct since the type of interest is determined by the social requirements of the situation. Whereas the expression of experimental interests is directed by necessity, social interest is largely regulated by success.

Such interest in conformity is well illustrated by the formation of clubs. The subordination of the individual is complete as is also his obedience to the "natural" leader, who holds his supremacy by power to express such interests as are most intense within the group as a whole. Membership implies a common sentiment against the offender, sympathy for the unfortunate members, and the preserving of group identity by special insignia, conventions, etc. Such deference to the group becomes universalized in fashion,—a conformity to the dictates of society in the large. Activities performed by the group intensify interest more than proportionately to the aggregate of individual interests expressed. Hence convention requires certain attitudes receiving group sanction to be taken-for-granted; thus

¹ This compromise is termed by Baldwin "the interest of learning." "It brings about through imitation, absorption, and trial, the progressive modification of personal habit in conformity to developing social ends." *Thought and Things*, III, p. 124.

modifying to some degree the natural expression of individual interest.

Returning to the conscious and purposive forms of outer imitation, we have to note the process by which certain experimental interests are selected for continued expression in the group. This process differs from the fellow-feeling just considered in that reproduction of another's actions does not imply reproduction of his thought. Such acts as are consciously reproduced are performed as a means of greater achievement and hence of greater social superiority. Aggressive attitudes are the rule and adaptive attitudes are taken only when such are necessary for continued self-expression. Yet with theoretical difference in function, the effects of both imitative processes are similar in that each gives rise to aggressive and adaptive interests. Hence inner and outer imitation are complementary, are instinctive in origin, and develop simultaneously. Some examples of experimental practical interests as expressed in group play may serve to illustrate this selective function of outer imitation more clearly.

Participation in playful or angry contests seldom appears before the third year and then usually in the form of feeble wrestling, yet a two year old shows pleasure in striking someone who pretends to be hurt.¹ Shortly after the third year this interest in *superiority* is revealed in all group play. Wrestling, shoving, racing, and all kinds of competitive games show that the fight is an end in itself.² The same interest lies in all resistance to authority, contradiction of elders and equals, and in such mental contests as board and card games when the element of chance is excluded. In games of pure rivalry, the fight interest is heightened by the feeling of jealousy. Interest in superiority here seeks the distinction of leadership; first, because others want it, and also because of the praise which recognition of superiority entails. Emulation differs from jealousy in that admiration is sought rather than love and often takes the form of boasting. "To lift heavier weights, to throw farther, to run faster, to jump higher, to make a top spin longer, to stay longer under water . . . is the burning wish of every childish heart."³ Other varieties of interest in superiority occur in teasing and in assuming provocative attitudes towards those who may not be insulted by words.⁴ Closely

¹ Groos, *op. cit.*, p. 174.

² O'Shea, "Interest in Childhood," *Child Study Monthly*, 11: 266-278.

³ Groos, *op. cit.*, p. 199.

⁴ *cf.* Chamberlain, *op. cit.*, pp. 262ff.

related is interest in the practical joke. The perpetrator has interest first in superiority to and then in fellow-feeling with the victim.

Such familiar behavior emphasizes the significance of interest in superiority, the social expression of experimental interest in achievement. The fact that in children this interest can find expression only in the society of equals renders it a powerful esprit de corps. Thus even the aggressive self implies an indirect group interest. Social recognition requires that certain personal achievements find favor with the group, and aggressive interests so sanctioned tend rapidly to become habitual, largely determining the child's early ambitions and ideals.¹ Outer imitation may produce interest either in the activity itself or in its result. The former involves intellectual experiment and the latter rivalry. Thus while outer imitation, like fellow-feeling, requires adaptation to group interest and hence the pursuit of social ends, its chief function is to select certain aggressive interests which in certain situations may safely be pursued to the end of personal superiority.

Before considering the theoretical effect of these phenomena upon the expression of experimental types of interest, the function of suggestion deserves comment. While suggestion no doubt offers a fairly adequate explanation of all imitative behavior, its separate treatment emphasizes the means by which imitation can be objectively controlled. Various qualities which render an idea suggestive, such as mass, break in continuity, expectedness, intelligibility, and pleasantness, are common to varieties of experimental interest. These qualities accordingly render any activity attractive, and the instinctive response thus produced accounts for imitation no less than other behavior. Yet the distinguishing feature of the suggested imitative response is its prepotency over other more habitual responses. Keatinge's definition explains this prepotency in terms of interest-intensity: "A suggestive idea is one which exercises a disintegrating (dissociative) influence on the mind in such a way that critical and inhibitory ideas are rendered ineffective. . . . The suggestive idea, while it need not be independent of knowledge, leads straight to action or belief."² Hence in neural terms the suggestive idea takes possession either by directly stimulating involuntary attention through sense appeal or by such non-voluntary reinforcement of previous dispositions

¹cf. Darrah, *Popular Sc. Monthly*, 53:88; Monroe, *Education*, 18:259; Jegi, *Trans. Illinois Society for Child Study*, 3:131-144; Taylor, *Report State Sup't of N. Y.*, 1896; Barnes, *Studies in Education*, *passim*.

² *op. cit.*, p. 54.

that conflicting tendencies are inhibited. Certain typical conditions are evident. First, an idea becomes suggestive when its very remoteness from existing ideas is the fact attended to—witness the conjuror's movements and the emphatic statement of the orator who "takes his audience by storm." Second, the idea must avoid association with conflicting impressions and find association so far as possible, with favorable impressions. Also while the suggestion may be compatible with prevalent ideas, it must avoid over-emphasis. The effect of certain advertisements and of much class-room advice is often the opposite of the effect intended. A third condition is the subject's attitude toward the suggester, who should be trusted, loved, or feared. Confidence and love imply the medium of common interests, which alone tends to repress unfavorable associations. Fear carries conviction by sheer intensity of reinforcement. While the complexities of the dissociative process in suggestion are scarcely intimated by this summary, the outline should indicate the role of suggestion as a factor of social interest and something as to its relation to other factors discussed elsewhere. It should also be noted that, however offered, suggestion assists learning only in so far as the suggested impression is confirmed by voluntary effort of attention. Otherwise, as in hypnosis, interest in the new is transient and ineffective because unassociated with the old.

Behavioristic studies of adolescent interests in general have as yet established little more than the fact that such interests are the most diverse. No valid criteria exist to determine the relative frequency of various nascent social interests. All attempts to correlate such tendencies with instinctive impulse on the one hand and with mature behavior on the other must consequently rely on the consensus of theoretical opinion. To this end the simplest course will be to indicate somewhat schematically such sub-divisions in the types of instinctive interest as must in theory result from social modifications outlined in this chapter. Theoretically, then, each type contains two such sub-divisions distinguished by aggressive and adaptive social attitudes,—the former implying extrinsic interest in the situation itself as being of near or ultimate usefulness, and the latter implying an intrinsic interest in thought of the situation as being of such a nature.¹ Extrinsic interest thus regards the situation as a *means* of

¹ Intrinsic interest should not be confused with "purely intrinsic" interest, the term applied to the unmodified type of experimental interest in mere indulgence of feeling. The distinctions here made are taken directly from W. Mitchell's analysis, *op. cit.*, pp. 65-70.

realizing primary interest in any of the three types whose end may be either agreeable feeling, or desirable action, or meaning applicable to conduct. Intrinsic interest regards the situation as an end on account of the nature of the feelings, acts, or thoughts immediately involved. The character of these modifications may be suggested as effecting each type.

As applied to the practical type, we have seen that individual interest may become socialized either by becoming partly identified with that of the group, so as better to make use of a particular situation or by partial conflict with that of the group, which involves thought of the situation and justice to the interests of others concerned. The former experience expresses the extrinsic or *purely practical* interest in the utility of the situation as means to an end and includes such aggressive varieties as pursuit, emulation, rivalry, *et al.* The latter expresses the intrinsic or *moral* interest in the situation as it is thought or as an end in itself, and includes such adaptive varieties as obedience, loyalty, self-control, consistency to personal standards, *et al.* This interest also perceives such qualities as bravery, deceitfulness, and cowardice as these affect conduct, for this is a strictly practical consideration when applied to others.

Cognitive interest in a perplexing situation instead of seeking the acquirement of knowledge as such, may seek to understand it as affecting future conduct. Interest attempts to relate the situation to habitual experience and place it in the system in which it belongs, as in the discovery that drunkards may be good men and preachers the reverse. Such interest of the extrinsic sort may be termed *rational*. This is related to objects as real, as having a certain identity. When the intrinsic interest is exclusively vested in the knowledge itself, it may be termed *purely theoretical*. It implies "interest in a truth which a thought claims or seeks." This close relation between moral and rational interests as distinct from the purely practical and theoretical, suggests the normal distribution of social interest regardless of type. The latter forms may represent the survival of selected experimental interest in the social stage.

Because of the primacy of purely intrinsic interest in all experience, the intrinsic elements of the practical and cognitive types constitute social modifications of the purely intrinsic type. When absorbed in a situation—whether in landscape, music, or drama—our interest is expressed largely in the indulgence of feeling, and this element, the aesthetic, is therefore constant. When interest seeks only abstrac-

tion from reality, the experimental interest in pure sensation is continued without appreciable change. Yet surrender to feelings because of their relation to reality implies the introduction of a relatively extrinsic element. Thus contemplation of the character of Jesus may produce in the man of piety a state of absorption in which his own moral interest in self-sacrifice for the many becomes the occasion for the affective indulgence. The philosopher may in the same instance be absorbed in the theoretical significance of self-realization. Hence the subdivisions of the purely intrinsic type may consist of aesthetic, moral, and theoretical interests.

Social interests imply a certain degree of physical maturity, for one reason in that development of the ductless glands is connected with control of emotional reactions. Hence from the time when aggressive interests are first to some degree identified with adaptive interests, normal development implies the increasing control of the latter until an approximate balance is reached. Thereafter behavior is directed by such interests as are rendered habitual by successful expression in the particular environment. Certain phenomena of such expression are next to be considered.

CHAPTER FIVE. SOCIAL EXPRESSION OF INTEREST

The varieties of social behavior are identical with life itself and as such defy classification by means hitherto employed. For this reason the following description of the approach to a study of habitual interest makes no attempt to correlate specific phenomena, but instead seeks to indicate certain tendencies that govern the later expression of interests already distinguished. More concretely, we are to consider the nature of certain reactions to success and failure in environmental adjustment. The effect of these reactions is understood to determine the balance between aggressive and adaptive interests by which habitual attitudes and, in a sense, character become established.

That all growth and hence all behavior depends essentially upon the interaction of aggressive and adaptive attitudes variously defined, is well supported by both scientific and empirical evidence.¹ While the two attitudes are present as common elements in most situations, there are other situations in which one attitude may find expression to the practical exclusion of the other. The freshman from a provincial high school must for the most part conform to the new demands of university life. In his senior year aggressive interests may seek more fully to realize personal superiority: yet their fullest expression is resisted by various social influences whose existence has been taken-for-granted. This familiar experience suggests that the ratio of aggressive and adaptive interests explaining the individual's behavior in particular situations, is determined by the degree of such resistance.

The use of the term "resistance" in connection with the expression of social interest at once suggests the application of psychoanalytic theory. Quite apart from its still discredited practice and most of the sex diagnosis involved,² the central notion of this theory contains much of approved value. Such indirect applications as have been made in the fields of industry by the late Carleton Parker and A. H. Southard among others, in medicine by numerous British

¹ cf. Brewer: "The Vocational Guidance Movement," p. 105.

² cf. McDougall, "Social Psychology," pp. 394ff.

and American psychiatrists chiefly in connection with war neuroses, and still more recently in education by the English writers, H. C. Cameron,¹ C. W. Kimmins,² and St. G. F. Pitt³—have largely vindicated the underlying principles as helpful approaches to problems of social readjustment. It may further be noted that the effect of many excellent critical treatments has been⁴ to remove the arbitrary distinction formerly made between normal and abnormal cases. While unquestionably the value of the remedy depends upon the abnormality of the case, it is widely recognized that the same phenomena appear in the so called normal cases to some degree. Confidence is therefore justified in such clearly operative principles as apply to the social expression of interest.

Fundamental in this notion of the unconscious is the view that all mental activity implies a life impulse, variously defined, which is the force that reveals itself as interest. "It is with the utilization, expression, and application of interest that the unconscious continually concerns itself."⁵ By virtue of this biological source, the interest thus seeking expression is essentially instinctive and hence aggressive in nature. In situations beyond control, the expression of such interest is clearly impossible. It is resisted by the actual conditions that exist or, in a word, by reality. From this dilemma there are two means of escape; either the resistance may be overcome by such modification of interest as will bear social expression and hence conform to reality, or the resistance is not overcome. The anti-social interest persists in the unconscious at variance with reality, and conduct is out of alignment. Such forgotten "repressed" interest is thus a source of mental unrest which seeks comfort in the false assumption that its ends have actually been realized. The unsuccessful portrait painter, for instance, persuades himself that he has achieved a master piece,—by way of compensation for his failure. These phenomena of resistance and of compensation need to be considered in slightly greater detail as affecting habitual expression of interest.

¹ "The Nervous Child."

² "Children's Dreams."

³ "The Purpose of Education."

⁴ For example, the series of articles published in the *London Times Educational Supplement* commencing May 27, 1920.

⁵ M. Nicoll, *op. cit.*, p. 83; see also W. A. White, "Mechanisms of Character Formation," pp. 118ff. for distinction between interest in directed and undirected thinking.

The fact has been emphasized that the experience of resistance overcome is the occasion for all learning.¹ Opposition to ideas taken-for-granted means the thwarting of an expectation upon which interest depends, hence the mind is temporarily at sea. The error requires a return to the familiar from which a later excursion into the unknown may profit by the earlier experience. By this means the child arrives at certain distinctions fundamental to the concept of reality. The first experience of resistance to physical effort teaches the distinction between self and world and forms perceptions of various objects. Resistance to these perceptions and thoughts of objects teaches the distinction between experience and reality and gives conceptions of general truth. A much later form of resistance that violates these conceptions may be supposed to yield the intellectual discipline which anticipates failure by previous reflection. By this evolution from lower to higher forms, resistance when successfully overcome is the means of continually closer contact with reality and of the normally distributed interest this contact implies. The many recent applications of this principle to education in particular fields, of which Helen Marot's *The Creative Impulse in Industry* is typical, deserve study in this connection.

The degree of repression, *i.e.* of failure to overcome such resistance, depends upon the extent to which personal interests are in conflict with or dissociated from group interests. There are various causes for such dissociation.² Perhaps the first to appear is the resistance of external conditions, which may be of such nature as either to prevent the continuance of an instinctive activity or to prevent its performance when required by further development. Such instances as the art lover's removal to a city without galleries, the financier's loss of capital by a turn in the market, and the scholar's loss of manuscript may illustrate repressions in each type of interest resulting from the former cause. The latter is illustrated by the younger boy's reluctance to enter games with his elders. As distinct from these external factors, repression may result from the moral interest or loyalty, which denies expression to legitimate interests from a mistaken sense of propriety. An example may be found in the group prejudice against the "grind" which opposes his practical interest to excel in school work. The resulting conflict between loyalty to the group and obedience to authority

¹ W. Mitchell, *op. cit.*, p. 64.

² As distinguished by O. Pfister, "Psychoanalytic Method," Chap. V.

can normally have but one outcome,—the group triumphs. This distaste for authority as such is characteristic of all aggressive interest; hence the value of problem methods which avoid emphasis of the pupils, inferiority. In contrast to this preventive aspect, moral interest becomes a repressing factor in its punishing aspect. A conflict takes place between the unsocial interest expressed in the act and the inhibited social interest. The resulting psychic disturbance may lead either to another act of expiation or to repressing the fact of the misdeemeanor. The pretense of virtue as a cloak to irregular conduct is thus the direct result of the guilt, since both thought and appearance of it are repressed:—witness Lady Macbeth, the proverbial instance of unconscious justification.

In “compensation” we have to consider a universal tendency of mind to disguise failures in adjustment to reality whether these result from the above typical causes or from others. Essentially the theory involved agrees with the metaphysics of Emerson’s classic essay, yet it is entirely distinct from the “theory of compensation” as known to quantitative psychology. The latter in effect maintains that marked superiority in certain lines of achievement is usually offset by inferiority in others—a fallacy revealed by Thorndike.¹ As here used the term refers strictly to relative differences. Its nature appears in the universal tendency to exaggerate slightly one’s income, social status, abilities, and other interests imperfectly realized. Such compensatory illusions, commonly known as “fantasy,” have both favorable and unfavorable effects upon behavior. In childhood the fantasy is largely protective. The more sensitive the mind, the greater is the need for illusion to reduce the shock of reality. While in maturity this function sometimes serves the same purpose, as in reducing the shock of a sudden loss which otherwise might cause insanity,—its effects are usually undesirable. These effects are commonly described in the extreme forms of introversion and extroversion,² the former indicating an undercompensated type of behavior in which fantasy is not active enough, and the latter an overcompensated type in which the fantasy is too active.³ The nature and extent of such fantasy are best determined when consciousness is unfocussed—whether by

¹ *op. cit.*, p. 301.

² White, *op. cit.*, pp. 217ff. compares these terms with numerous other equivalents.

³ For helpful illustrations from school situations see Long: *Psychoanalysis in Relation to the Child. Journal of Experimental Pedagogy* (London), June, 1917.

sleep, fatigue, drugs, or other agencies.¹ Introversion then implies a preoccupation with self which renders adaptation most difficult. "Interest persistently turns inwards, away from the contact of the world, and finds its easiest and most natural utilization in thought." Fear plays an important part in its impulses which tend toward self

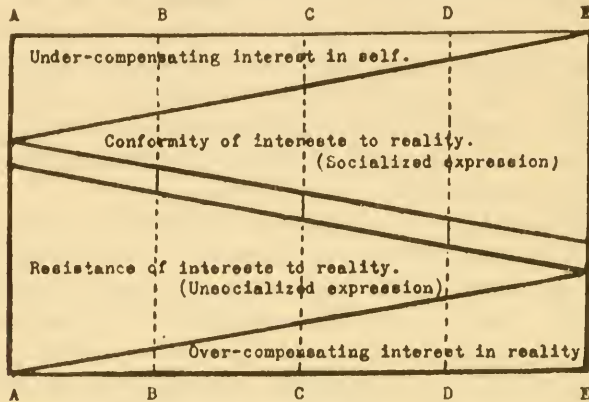


Figure Two. Illustrating the Socializing Effect of Resistance upon Aggressive Interest.

Explanation:

A, B, C, D, E indicate degrees of resistance as normally distributed.

A indicates stage of maximum resistance to aggressive interests. Failure to realize is largely compensated by fantasy of success.

B indicates stage of normal introversion. Resistance to aggressive interests is partially overcome by conscious effort.

C indicates the ideal mean between intrinsic and extrinsic interests about which compensation centers.

D indicates stage of normal extroversion. Easy conformity to social interests only slightly compensated by fantasy and largely confirmed by actual success.

E indicates stage of minimum resistance to aggressive interests implying successful adaptation by which these interests are confirmed.

criticism and against emotional betrayal. The extrovert on the contrary accepts social interests spontaneously and without question. His life is largely superficial, but gains in breadth what it lacks in depth. It reveals a maximum of vigorous and impulsive feeling with a minimum of thought and reflection.

Between these widely opposed extremes the degrees of compensation are normally distributed, as indicated in Figure Two. From

¹ Most advantageously perhaps by day dreams, cf. J. Adams, *ibid*, March, 1914 and Thorndike, *Educ. Psych.* (1910) p. 50; and occasionally by choice of reading; Hall, *Ped. Sem.*, 9:99 and Bell and Sweet, *Journal of Educ. Psych.*, 7:39-45.

this it will be inferred that when equal in degree the combined effects of self-interest and social interest are most to be desired, as implying the successful but effortful over-coming of resistance which is the condition of fullest development. Hence abnormality in expression of habitual interest, leading to dementia praecox in the one case and to paranoia in the other, is seen to result when either adaptive social interest or aggressive self-interest becomes overbalanced. By reference to the types of social interest (see p. 37) it will be noted that social interest for the introvert consists in preoccupation with his duties to society. External resistance is largely successful and his interest lies habitually in thought of situations to be met. It is therefore intrinsic and finds expression in the aesthetic, moral, and theoretical elements of this type. Moral issues are very significant, whatever standards may be, and social adjustment is achieved by force of intellectual grasp. On account of this self-critical tendency, a recognized deficiency in performance is likely to be overcome by persistent effort, after the manner of the poor student who becomes the successful teacher. The many exceptions to this course quite naturally result from the relative infrequency of this intrinsic social interest in its pure expression. For the extrovert, the effect of whose experience and mental disposition is such as largely to negate resistance, expression occurs in the extrinsic elements,—the purely practical and the rational. The ease of adjustment renders each situation primarily the means for continued instinctive expression. Hence moral issues are unlikely to arise and when they do they are decided by the standards of the moment. While the resulting inconsistency is opposed to social integration, such behavior illustrates the teaching of "conflict psychology" with respect to mental hygiene; namely, "express every painful situation in a social way." "To know the better and follow the worse indicates a healthier state of mind . . . than that possessed by the individual whose ill-doing springs from repressed unconscious motives."¹ Yet in all behavior a purposeful overcoming of resistance is the best means of compromise between intrinsic and extrinsic social interest on which capacity for both moral and rational conduct depends. Hence in the standardized adjustment of resistance to meet individual needs lie the hopes of efficient education and of psychotherapy.

While this description of extreme types may have obscured the

¹ cf. Lawrence, *The Theory of Repression and Character*. *Journal of Experimental Pedagogy* (London), Dec., 1916, p. 62.

intervening cases to which its useful interpretation must apply, such plan of treatment is probably the best approach to the study of resistance and its effects upon habitual social interest. A final chapter indicates certain motivating principles implied in previous discussion and suggests corresponding hypotheses more capable of conclusive experiment.

CHAPTER SIX. EDUCATIONAL IMPLICATIONS

Any discussion of the means by which various forms of interest can be objectively controlled presupposes the ability to detect these interests in the individual's behavior. As implied throughout previous discussion, these forms of interest should be distinguished by the ends sought in a particular environment. In the attempt to distinguish these forms by congenital capabilities, the suggested classification by types, etc. is obviously too broad to be serviceable. It is therefore necessary that each capability be rated by thorough clinical examination before the individual's "educability" or chance of attaining these ends can be definitely known.¹ Interests themselves are inferred both from (1) subjective estimates based on observation of various expressions and (2) quantitative estimates based on observation in measurable performances. Both approaches include many useful methods which might well be discussed in connection with former analysis, yet such discussion may not be entered here. Instead it may prove sufficient to note certain assumptions involved in the discussion to follow.

The first of these postulates that the interest most profitably diagnosed should mediate between momentary preferences and uniformly permanent tendencies of original nature. The relative element is necessary to indicate the point of approach; the absolute element to prevent reliance upon mere caprice. That interest in the given individual which best serves the educational purpose may therefore be roughly indicated by the ends in a given environment which he habitually puts forth most effort to attain and with which he habitually identifies himself. Thus defined, it is evident that all methods which require accurate observation of behavior are valuable. It is further necessary to emphasize the distinction between the use of various methods to discover interests and their use to direct interests. Even by quantitative tests of competencies, it is often possible to direct interest toward a previously distasteful activity

¹ For helpful classification and description of these capabilities see H. J. Humpstone: *The Analytical Diagnosis*. *The Psychological Clinic*, May 15, 1919.

by convincing the subject that he has the required ability.¹ The effective means of rating "dynamic qualities" by observation proposed by Rugg² is devised with this end directly in view. Its important features are two: the self-improvement of students through self-rating, and measurement by direct comparison. The latter is the most reliable form of subjective estimate. While the use of such score cards does not eliminate prejudice, it does much to define the qualities estimated and to reduce the liability of error, as shown by occasional correlations between subjective and quantitative ratings of the so-called measurable traits.³ When interest is observed in its most spontaneous expression as in dramatics, athletics, and other extra-curriculum activities, such ratings become highly reliable. The value of quantitative studies as a basis for inference regarding relative differences depends greatly on knowledge of the individual's previous experience. If allowance is made for the irregular rate of mental development, the effect of laboratory conditions, and the imperfections of scales now in use, a wide variety of performance tests may indicate the probable remoteness or span of interest,⁴ the extent of development or genetic stage of interest, and also those activities best suited to specific abilities in which interest is normally most intense. In short, it appears that diagnosis of interests as described, requires the use of standard tests to determine capabilities, the widest practicable observation of behavior to determine relative factors, and adequate, progressive, and available records of such behavior for the guidance of all concerned.

The attempt to relate phenomena of interest to specific educational controls with any degree of precision requires that the nature and effects of both be scientifically described. Quantitative measurement and classification of interest lies beyond all present hope, yet scientific description of various stimuli and of their apparent effects upon behavior under standardized conditions is not only possible but is essential to the confirmation and intelligent use of theories herein considered. The Chapman and Feeler experiment, noted in the first chapter of this article, is typical of many studies leading

¹ H. C. Link: "Employment Psychology," p. 208.

² *School Review*, May, 1920.

³ H. C. Link, *op. cit.*, p. 332 gives reasons for this reduction of error; L. M. Terman: "Intelligence of School Children," pp. 57ff. mentions certain rather questionable correlations.

⁴ *cf.* E. K. Fretwell: A Study in Educational Prognosis. *Teachers' Col. Cont.*, No. 99, p. 303.

to this end whose conclusions to date are nevertheless too fragmentary to serve as corroborative evidence. The same is in general true of educational controls. By analogy with a principle of industrial efficiency, which requires that the best means of arriving at standard attainments should be adopted as standard operations and consistently employed so far as standard conditions will permit,¹ education must extend its scientific description of various products to include those *processes* by which under standard conditions each product is best attained.² Otherwise it is difficult to see how principles of method can be transferred from educational theory to educational fact. It is not intended that these principles involved in efficient management of any enterprise should be applied to education in merely a figurative sense. Their actual application becomes evident when the pupil takes the place of the industrial worker, who is guided by superiors in performing such operations as lead to various attainments determined by the aim. For the pupil these attainments comprise the various proficiencies or educational products that result from various operations in the process. The remainder of the discussion in developing this point of view is confined to a purely theoretical account of motivation in terms previously used.

The term motivation may here be understood to mean the stimulus to such self-activity under prescribed conditions as tends to modify later activity in a desired direction. A most superficial view of the process reveals the fact that this stimulus may come either from the conditions themselves, or from outside, or from both. In terms of educational theory, the prescribed conditions may be identified with course of study and the outside stimulus with method. To the same degree that the standard conditions and standard operations of industrial efficiency are both responsible for the standard attainment, both course of study and method are involved in the educational product. Together these constitute the motivating process with which we are chiefly concerned, yet by the theoretical distinction each may be considered separately. The product is the cross section

¹ cf. H. Emerson: "Twelve Principles of Efficiency," Chap. XII and H. Updegraff: "Scientific Management in Educational Administration," *Univ. of Penna. Free Lectures*, 1913-14, pp. 350-64, whose current research is pioneer work in this field. The term "standardization" as applied to educational method and products is here used in the industrial and not in the statistical sense. It means simply the selection and maintenance of the best method, product, etc. under specified conditions.

² As advocated by Rugg, *op. cit.*, p. 340.

of the process, which like the standard attainment is best defined in terms of process. This means that neither knowledge, interest, nor action should alone constitute the desired product, but that all three with their many implications should be taken into account so far as may be practicable.

As the standard conditions of efficient enterprise are made as favorable as possible with reference to the particular aim, the course of study should likewise be determined by the educational aim, or in other words by the needs of the individual pupil. Such needs as typical of large groups in various conditions of modern society have been analyzed from many different standpoints.¹ The various aims resulting from such analysis can in general be said to seek a happy compromise between certain competencies which society demands as a condition of full membership in the social order and the fullest development of the individual's native endowment. This mutual development of individual and social traits should then result so far as possible from the pupil's contact with the situations which comprise the course of study. The effectiveness of a particular situation to afford such development in the individual case is the criterion for its selection.

It is evident that in order to estimate this effectiveness one must anticipate those individual and social traits that are most valuable in the child's later experience. To the degree in which his behavior under present conditions is normal one may closely predict the later conditions by analogy with the experience of others whose behavior was similar at the same stage of development. By a preliminary statement this experience was shown roughly to comprise feeling and interest in a situation, action in such interest, and knowledge of the effects of such action. The comparison of present with probable future experience involved in selecting the effective course of study should then make due allowance for each element; and each, we have said, must also appear in the standard attainment or product by which the efficiency of both course of study and method is measured.

The departure of traditional practice from this ideal is largely explained by a fallacy of Herbartian psychology which regarded

¹ e.g. J. T. Bobbitt: "The Curriculum."

J. & E. Dewey: "Schools of Tomorrow."

A. D. Yocum: The Determinants of the Course of Study. *N. E. A. Proc.*, 1914. Nat. Soc. for Study of Education, 16th, 17th, and 19th Year Books, Part I.

ideas or knowledge as the sufficient explanation of interest. Hence to determine the traditional "text-book" course of study the educator had merely to tabulate the useful forms of knowledge,¹ take stock of the pupil's acquirement of each, and prescribe accordingly. In so doing he ignored the fact that analysis of residual knowledge is not analysis of behavior. Command of mere facts in no way ensures a useful attitude regarding them nor the probability of useful action as a result. Approaching the course of study from the opposite angle some "schools of tomorrow" err to the other extreme. Adapting the teaching situation to the tendencies of individual behavior not infrequently leads to reliance upon mere caprice. The integrating factor is minimized and the differentiating factor is supreme. Hence "problem-project" situations are only efficient to the degree that the pupil's action involves progressive standard attainments which apply to his case and which so far as possible are systematically planned in advance. Thanks to the present broadcast experiment such problem courses are rapidly becoming highly efficient in this respect. Yet to harmonize these two criteria—the universal knowledge requirement on the one hand and expression of individual interest on the other—there is need for the truly scientific analysis of behavior that shall bring all important factors of experience into proper perspective and that shall define these factors in terms of genetic development. The more quantitative such definition becomes, the more directly useful is it in determining the course of study. The greatest contribution of such analysis must consist in the more precise definition of aim that permits definition of standard attainments in terms of operations.

This outline of the problem may serve to justify the synthetic study of interest as one means of approach. As described in the theoretical terms of foregoing chapters such study thoroughly pursued must do much to standardize efficient educational procedure, since its actual completion implies the closer relation of the learning process to specific educational controls. The nature of that interest in which useful action is taken and useful knowledge acquired might then serve more largely to determine the individual course of study. Pending such conclusive experiment the theoretical criteria for selection of teaching situations must include the following: (a) relative differences, *i.e.* inference from the pupil's reactions as to the prevailing trends of interest; (b) absolute differences, *i.e.* inference from various

¹ As proposed most scientifically by Bobbitt, *op. cit.*

painstaking achievements as to the capacity for its realization under specific conditions; (c) inference from the experience of adults similarly endowed in the above respects as to the effects of such realization; and (d) inference from society at large as to the inevitable recurrence and applicability of the situation in later life for all individuals.

The ideal course of study consisting entirely of such situations as are fully adapted to individual needs must render the teacher superfluous. The demand for external motivation decreases as this intrinsic efficiency is approached. Thus while there is no clear difference in theory between course of study and method from the standpoint of motivation, the practical nonexistence of the ideal situation refers motivation almost entirely to method. In practice the function of content is simply to provide occasion for such experience as behavior shows to be most desirable at a given time. The functions of method are, essentially, (a) to promote sufficient activity to acquire this necessary experience, (b) to direct this experience toward various desirable ends, and (c) to cause each of these ends to be pursued upon appropriate future occasions. Thus the ideal method is almost equally independent of content, since almost any situation may provide occasion for some useful experience.

This relation of content to method and the later application of efficiency principles to both may be clarified by a random illustration of the learning process. We may suppose each of the primary types of interest to be represented by a vapid *femme-du-monde*, a cub-reporter, and a professor of dramatic literature,—all attending a production of a racy problem play. If the apperceptions of each are true to type, one may expect the lady to yield readily to intrinsic absorption in the lure of the matinee idol. The reporter is restrained from such indulgence by the practical demands of his write-up. The professor from the depths of his dramaturgy may properly inquire—“how can such trash be written?” It is evident that behavior is sufficiently motivated by the content in the sense that a fair amount of activity results in each case. It is equally evident that other content might better suit the needs of the three individuals. Yet in selecting this other content the educator is greatly assisted by study of each response to the play, which may stand for any characteristic behavior. The above criteria for selection of course of study here apply. The supplementary function of method involves the direction of this activity to the end most useful for the individual: the

lady's riot of feeling must be directed to certain useful and recurrent aspects of the situation; the reporter's concentration upon superficial features affecting him alone should admit some of the professor's social theory; while the professor, if not fully attained, may well profit by something of the other two. His interpretation of catharsis may doubtless be enriched by attention to the applause of the box-party: theoretical becomes rational interest. It is this normal variation from personal impulse through the socially obvious to the socially rational which marks the degrees of the learning process.

Since the higher degrees of this process are most readily distinguished from the lower by the useful knowledge acquired, progress is customarily judged by attainments in knowledge alone. Five such degrees of retention are clearly distinguished by Yocum¹ as forgotten knowledge, barely retained, many-sided (or depending upon various occasions for revival), definite, and generally applicable. Hence, the formal steps of instruction, the plan of text-books, and methods of instruction in general have conformed to this sequence. Such standard attainments as these, whether applied to the course of study as a whole or to a particular subject or part of a subject, are inefficient when they disregard other elements essential in the process. The standard operations,² or methods of reaching such attainments, are consequently inadequate also. To improve the efficiency of standard methods one must so revise the standard attainments that together these shall constitute a fuller realization of aim. We have noted that this aim involves the reciprocal functions of interest and knowledge. Inadequacy of useful knowledge, when recognized, is the source of new interest, and new interest the source of new knowledge. Hence the failure to realize expectations with regard to a situation marks the rise to a higher form of retention and a more adequate control.³ This relation suggests a theoretical correspondence between furtherance of interest and growth of knowledge by which the affective element may be included in the standard attainment and accordingly recognized in the standard operation. In terms previously defined these stages in the furtherance of interest may be distinguished as follows: First, interest in the present situation. Second, the interest expressed in the present situation finds expression in the idea of it. Third, interest in the idea includes ideas of similar situations de-

¹ A. D. Yocum: "Culture, Discipline and Democracy," pp. 31ff.

² cf. H. Emerson, *op. cit.*, Chap. XII.

³ W. Mitchell, *op. cit.*, p. 312.

manding the same sort of behavior because appealing to the same type of interest. This stage might be reached when the discovery of pleasure in poetry leads to a similar discovery in music, or where success in one undertaking inspires success in others, or when cognitive interest in a particular field leads to deeper respect for scholarship in general. Fourth, activity in one type of interest becomes habitual in particular situations. Fifth, habitual expression becomes socialized, and the nature of the interest expressed is determined by the social requirements of the situation; hence behavior is at all points in closest conformity with reality. The scale of interest is probably no more and no less useful than the scale of retention except in so far as the attainment of each degree is less readily determined. It has perhaps the advantage of being unsuited to group application, and of directing the teacher's attention to the individual response.

If regarded as tentative standard attainments, these degrees of knowledge and of interest combined must determine the operation to be standardized. Those particular operations or methods leading most directly to the attainment desired should be selected for application at various stages of the process. Hence on the basis of these progressive attainments it should be possible to distinguish the general functions of method in motivation which have been selected upon purely logical grounds; namely, the stimulation of activity, its direction toward desired ends, and its reproduction upon appropriate occasions. Each of these functions may be outlined in turn to suggest varieties of interest involved in each attainment and consequently in the process as a whole.¹

Whether considered genetically or as applied to all learning, the first three attainments may be related to the first function,—mere stimulation of activity. Before interest in a particular form of experience has become habitual and knowledge of it has become definite, behavior is directed toward the situation *as an end in itself*. Such behavior is largely experimental until the expectations regarding such situations have been justified by experience and their fulfilment is taken-for-granted. This experimental aspect of behavior suggests that progress through the first three attainments is motivated by expression of instinctive interest. The fact of such expression insures activity of some sort, and progress from one to another of these

¹ cf. A. D. Yocum, *N. E. A. Proceedings*, 1914, pp. 223-235, for an analysis of method in terms of knowledge attainments with which this treatment in terms of interest closely agrees.

attainments results from the increasing scope of activity as the types of instinctive interest evolve.

All activity is stimulated at first by interest in the mere situation which has no meaning other than its appeal to purely intrinsic interest. The force of this appeal is apparent in all forms of behavior in that things nearer sense are always the more influential.¹ In later expression attention varies with interest, but interest does not vary with attention. Interest in the mere situation does vary with attention inasmuch as to captivate attention is to motivate activity. The operations for producing involuntary attention as suggested by the varieties of purely intrinsic interest are familiar from daily observation. They consist in various sensory stimuli whose intensity is explained by such qualities as novelty, contrast, rhythm, movement, *et al.* Organic factors cause attention to persist, through none save the motor can be stimulated directly. The more the situation meets an instinctive want, the longer is the series of movements attended to. The intensity of stimulus should, however, be neither too high nor too low; otherwise it fails to take effect.² The great variety of such controls, as used in reaction time experiments, for example, suggest many means of producing some activity in any situation. The effect of such activity is mere contact with prepared conditions to which meaning may later be given.

Interest in the idea or meaning of the situation is essentially practical. The situation, though still an end in itself, is utilized. Hence activity is motivated by such instinctive interest as recognizes in the situation an occasion for achievement. To be recognized at all some knowledge of the situation must have been acquired from a former contact with it, but ignorance of this knowledge may result either from lack of interest or from too much interest beyond control. In the former case the problem of motivation is to ally the situation with what does have interest, which means, in the last analysis, with pleasant or painful consequences. This is done by emphasizing the significant elements of the situation and its consequence so that each may serve as a sign. By bringing the signs frequently together a cognitive interest is developed which may become practical if the consequence is sufficiently agreeable. The method is the same when interest is excessive and the situation has no clear meaning.

¹ cf. G. Wallas: "Human Nature in Politics," p. 106.

² See J. Adams' helpful description of "vanishing point" and "gaping point," 'Exposition and Illustration in Teaching,' p. 160.

The absorbing situation must be related to the consequence until the meaning becomes conscious. When meaning is thus acquired the situation appeals to practical interest. By presenting difficulties in the situation the teacher reveals the inadequacy of this meaning or of other beliefs taken-for-granted.¹ Hence interest in seeking progressively to overcome these difficulties finds expression in other aggressive forms, such as pursuit, rivalry *et al.*, and thereby develops characteristic behavior toward similar situations. The operations leading to the second attainment must therefore present problematic situations containing such qualities as appeal to these varieties of interest.

The development of interest from one situation to others like it results largely from gratification of curiosity. The interest may therefore be termed cognitive, though other elements as always are included. Recognition of a common quality in new and old situations leads to expectancy of the same consequence that followed the former experience and hence to reproduction of the same activity. The sense of achievement in the sound of an electric bell is expected to follow the pressing of an electric light button. Hence curiosity is a powerful factor in the unification of experience. Here as elsewhere the method of motivation, or operation to be standardized, consists in devising a problem which appeals as worth while and which leads to more effective expression in each type of interest. While this end is partly reached by merely increasing the variety of experience and so revealing the inadequacy of present learning, it is more directly reached by the pupil's independent thought. In either case the new adjustment must be so challenged as to require reflection upon its value. Such reflection implies expression of similar interests in similar situations and possession of "many-sided" knowledge which together constitute the third attainment.

The increasing role of social influences at approximately this stage of the process involves a new function of method,—the direction of activity in all situations toward certain useful ends. As implied by the fourth attainment to which this activity leads, certain situations are taken-for-granted and so become the means by which habitual interests are realized. Other situations less directly related to these interests are still regarded as ends in themselves. Hence this distinction between means and ends observes the distinction previously made between extrinsic and intrinsic interests. The former express an aggressive attitude toward situations that may serve more remote

¹ cf. W. Mitchell, *op. cit.*, p. 292.

personal ends, whether the prevailing interest be intrinsic, practical or rational. The latter express an adaptive attitude toward the nature of the situation, whether this is of interest in a moral or theoretical aspect.

Such methods as may be standardized to motivate this attainment of habitual interest must be selected entirely by individual diagnosis. No general prescription can possibly prove effective. Yet the most obvious implications of the above analysis may help to interpret such diagnosis in selection of method. One such implication is that the more vigorous tendencies revealed by diagnosis should be directed toward ends that can be profitably realized in the given environment. A curriculum consisting of prescribed, experimental, and elective courses¹ does much to indicate the nature of these tendencies² and the particular field to be regarded as the pupil's specialty. This should naturally be the field in which interest and ability coincide. Predominant interest in aesthetic appreciation, in rivalry, or in intellectual curiosity, as expressed by various individuals in various school activities, should determine both the teacher's means of approach and the individual's status in the group. Interests most closely identified with the self should when possible be directly furthered by such success as will lead to more remote realizations. This success the teacher can regulate by assigning problems more or less difficult so as to preserve a justifiable feeling of superiority in the special field. Whether the specialty lie in public speaking, or in wood-work, or in the operation of moving picture machines, this fact will determine the motivation of other activity so far as common elements are actually present. While the particular interest thus rendered habitual is not significant, *some* special interest should be successfully expressed. When once this successful expression has become habitual, the interest may seek more distant and more useful ends. Very frequently the reluctance to learn from elders causes indifference to all activities. This can perhaps best be overcome by obtaining influence over leaders of group and by such laboratory methods as give the pupil the advantage of the teacher regarding certain facts.³ When problems can be thus rationalized in terms of

¹ e.g. as described by C. R. Henderson, *Prin. of Educ.*, p. 492.

² Best distinguished perhaps by type of interest as suggested by W. H. Kilpatrick, *N. E. A. Proceedings*, 1918, pp. 528ff.

³ cf. W. J. McCallister: An Experiment in Use of the Reference Library. *Journal of Experimental Pedagogy*, (London), March, 1917.

extrinsic interest, the operation is likely to be efficient. If the unpleasantness of filthy streets can motivate an intelligent interest in slums, for example, instruction in civics is greatly economized.

The extent to which this direct motivation is possible depends of course upon both pupil and teacher. When the pupil's aggressive interests are sufficiently intense and varied, the teacher may have enough ingenuity to reveal social ends in each spontaneous activity. Yet the limits of human resourcefulness are such that direct motivation of preparatory learning is often wasteful. As Klapper says, "the creation of the conditions that would make motive arise would produce an artificiality similar to learning because of authority." While final acceptance of this view must depend on the success of many current experiments which rely entirely upon direct motivation, it is supported by former explanation of intrinsic social interests. Adaptation to novel situations is usually the immediate effect of authority. Hence the operation which best renders these adaptive interests habitual involves a certain amount of coercion. Activity should accordingly be directed by mediate interest which bears the closest relation to the end proposed. Judged simply as a means of producing temporary conformity the birch is the most effective appeal to this interest. Its inefficiency as a means of moral instruction lies in the resulting feeling of inferiority which negates the cooperative attitude upon which healthy moral interest must depend. Hence the efficient operation by which habitual intrinsic interests are attained would logically consist in the maintenance of esprit de corps. Such means of directing interest to the demands of various social situations may well include forms of drill and review where each is motivated so far as possible by mediate interest in success or in novelty of presentation.¹

The third function of method, which involves the final attainment of the process, is concerned with the appropriate expression of both extrinsic and intrinsic interests. Both must be adjusted to the occasion, *i.e.* to reality. To this end motivation must rely upon the instinctive tendency to compensate for undue expression of either. The educator's problem is to cultivate standards of conduct that shall prevent both the exploitation of easy situations and the complete surrender to others. Each of these attitudes leads to feelings of inferiority;—since gratification of selfish impulse meets the disapproval of the group, and repression of legitimate interests brings the sense

¹ *cf.* means of such motivation by standardized tests. W. S. Monroe: "Measuring the Results of Teaching," p. 79 *et passim*.

of failure. Hence the effect of instinctive compensation is to displace this actual inferiority by the illusion of success. Though the educational process is necessarily the same, it is possible so to modify the resistance that success in some line of endeavor may become actual and so give rise to legitimate feelings of social superiority. The value of this procedure depends upon the degree to which realization of aggressive interests involves expression of adaptive interests also, and vice versa. Whether strictly personal ends are sought in bodily comfort or social ends in community service, the attainment of each should require both aggressive action and deference to social sanctions. Otherwise the response is determined largely by the immediate situation and behavior becomes aimless. By the fullest expression of both attitudes in each situation, the whole of experience is coordinated and directed toward certain ends more or less remote. Hence it follows that the more remote the end, the longer becomes the series of situations through which interest is progressively transferred and the more completely is this interest adjusted to reality.

Otherwise stated, the last of the five attainments proposed involves an operation by which interest is transferred from one to as many situations as possible. Hence the process consists in the formation of ideals. In no other educational product is this phenomenon of transfer clearly apparent.¹ In solving a problem in arithmetic, in kicking a field goal, or in satisfying an importunate friend interest may well be confined to the immediate occasion. Yet when such interest seeks the remote ends of scholarship, sportsmanship, or generosity, its expression is involved in a number of situations that are normally distributed with regard to resistance offered. The ideal of school popularity may well include three. Hence an end remote enough to constitute an ideal is best approached by activity which expresses both extrinsic and intrinsic interests in various situations. The expression of both may be regulated by increasing or decreasing the difficulty of the pupil's problems in such manner as to assist the natural process of compensation. The easy problem fosters aggressive interest and sustains the more remote realization. The difficult problem fosters adaptive interests and demands closer contact with reality. On this account the diffidence of the pupil too guarded in his replies should be overcome by such success as will increase his social status. The assurance of the excessively "original" pupil should be met by such failure as will compel a wider grasp

¹ cf. Ruediger, *Prin. of Educ.*, pp. 112ff.

of reality. Since the mass of the school population distributed between these extremes is composed of individuals requiring adjustment on one side or the other or on both, the operation can be standardized only in so far as the degree of adjustment is approximately the same for different individuals at various stages of development.

While the sequence of these theoretical attainments and of the operations leading to each is intended to follow the course of normal genetic development, it is obvious that such uniform progress along varied lines of experience is conceivable only in theory. As applied to the individual pupil, the processes here related to successive attainments must occur simultaneously as different attainments are reached in various fields of endeavor. Yet even in maturity the development of interest in a new field proceeds from the specific situation to the whole of experience, which may justify the theoretical sequence to some degree.

The hope for standard methods of directing behavior to the most useful development of individual differences, depends for fulfilment upon quantitative description. While as yet few if any "absolute" differences have been adequately described in quantitative terms, it is too soon to predict that correlations between absolute and relative differences may not in time be established which will define the latter more precisely. Progress is most tangible within the field of quantitative experiment. Qualitative analysis, by reason of the personal equation and the number of variables involved, is ever open to question. Yet the belief is legitimate that some such index of relative differences as may be afforded by a synthetic study of interest may hasten the convergence of the two methods of approach. Such study should serve both to stimulate educational research by the contribution of hopeful theory and to standardize intelligent practice as such theory is confirmed.

CONCLUSIONS

1. The genetic development of interest as observable in groups provides a basis for standard principles of educational method. When applied to the results of individual diagnosis, these principles effect a useful compromise between traditional methods based on theoretical analysis of socially useful knowledge and experimental methods based on the pupil's preferences or other superficial analysis of behavior.

2. Such principles are useful in selecting cumulative teaching situations or the course of study in so far as typical affective reactions

to particular qualities of a given situation are identified with the pupil's progressive attainments in ideas, skills, habits, etc. These situations may be standardized to the degree that such attainments can be precisely described in terms of process.

3. Methods of motivating the learning process may be standardized to the degree in which the typical interests of various pupils are uniform at approximately the same stage of development. Such uniformity may be assisted by controlling environmental conditions and by grouping with respect to abilities determined by performance tests.

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